

FLIGHT

The
**AIRCRAFT
ENGINEER
&
AIRSHIPS**

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

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DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:—

Aug. 3-14	Rhön Gliding Competition
Aug. 6	Aerial Derby, Croydon
Aug. 6-27	French Gliding Competition, near Cherbourg
Aug. 8-12	F.I.A. Conference, Gothenburg.
Sept. 23	Gordon Bennett Balloon Race, Belgium
Sept. 28	Schneider Cup Seaplane Race at Cowes
Oct. 8-13	Light 'Plane and Glider Competitions, Lympe
Oct. 14	Beaumont Cup Race at Istres, France
Dec. 1	Entries close for French Aero Engine Competition

1924

Mar. 1 French Aero Engine Competition.

EDITORIAL COMMENT.



The Admiralty's Dilemma

THAT the Admiralty is desperate in its anxiety to continue top dog is very evident from the tactics adopted to clutch at the Air Force life-belt, which they hope is still within their reach. Apparently it counts for nothing that in the days ago they had the aircraft ball at their feet, but severely refused to have anything to do with it beyond according the beastly thing a lofty patronage as an evil to be endured but not utilised. When it is necessary to resort to the childishly bad-tempered bluff of permitting the circulation of rumours of wholesale resignations without they can have their own way, things must be in a pretty bad way. The counter rumour of the same character attributing a similar intention to the Air Chief-Marshal may be dismissed as ridiculous. Sir Hugh Trenchard is much too sound a strategist to contemplate any such weak and false step. It is indeed refreshing to note the firm attitude taken up in the matter by the Cabinet, which, after all, as Sir Wm. Joynson-Hicks emphatically points out, is the final "tribunal" to decide what is best in Imperial interests. That the plaintiffs' case is particularly weak is obvious from the necessity for so many biased apologists to appear to bolster up the Navy's quibbling claims, as against the dignified silence of the Air Ministry and its supporters. This tells its own tale, and, although there may be some directions of detail in which the greatest air efficiency for naval purposes can be assured in the selection and training of air-units earmarked for naval co-operation, in the main every practical experience during the War and since points to the absolute necessity for having a supreme Ministry to deal with Aircraft and Air tactics as a whole, which leads up naturally to the Minister of Defence, which sooner or later must come. However, that the more perfect accord in working would be assured by the addition of Naval and Military members to the Air Ministry appears to be an unanswerable proposition. Minor points made by the advocates of separate naval control are hardly worthy of a moment's argument. Almost without exception, under the constitution and organisation of the Air Ministry, the alleged difficulties do not exist.

Take merely one item which is made much of over and over again, that in active service the naval commanders have no control over the air units placed at their disposal. Can anything be more fatuous? Once the units are placed to the credit of the Navy the naval commanding officers are in absolute charge to bid the fetching and carrying as they deem desirable. As sensible to suggest that they have no control over the Royal Marines when attached to war vessels. Taken altogether the present agitation is merely a natural outcome of the "writing on the wall" which many, many years ago FLIGHT pointed out was there, to take note of by those who would, having now grown into such very plain reading that even at the Admiralty they have discerned that the legend looks very much like "The Passing of the Navy." And it is so. That all reasonable means between the Air Ministry and the Admiralty should and will be adopted to ensure smooth working for Imperial ends goes without saying, but we should be very surprised if the report and recommendations of the Committee of Imperial Defence are scrapped by the Government. We have every confidence that the "crisis" will be so handled by the Cabinet that ere long folk will be asking what it was all about.

The Airship Decision

At last it is beginning to look as if there were, at any rate, a possibility that Great Britain may resume the work on airships which has been so unwisely allowed to drop during the last three or four years. There should be no necessity to remind readers of FLIGHT that successive Governments have dallied with the airship question for a very long period, and that, although the double crossing of the Atlantic by the R.34 more than four years ago should have acted as a strong incentive for this country to continue and to expand airship research and experiment, the very reverse has been the case. During the War something like £40,000,000 was spent on airships and the decision to "scrap the lot," which on more than one occasion has only just been avoided, has left this country without technical and operational airship personnel. Not only so, but in the latest Burney scheme, which has now been adopted by the Government "in principle," there is no room for such airships as are still in existence, nor for the nearly-completed R.37. Thus much of the experimental work done in the past will be wasted, and the competition of British airship firms with those of other countries made the more difficult on account of the short-sighted policy, or rather entire lack of policy, exhibited by previous Governments.

However, better late than never is a saying which can, let us hope, be applied in this case also, and, at any rate, the promise of a small beginning has been made which, if the financial details of the contract can be satisfactorily settled with the Treasury, should result in the resumption of airship development in Great Britain.

With regard to the latest Burney scheme, this is on

a considerably more modest scale than was the original one. Without going into minute details, the full scheme provides for a subsidy of £400,000 a year for seven years. As at present proposed, the scheme appears to involve but £400,000 of the taxpayer's money—as subsidy payable in the first year. Subsequent subsidies are only payable subject to certain possibilities being proved in practice, and if the first and subsequent trials are successful the whole of the Government subsidies will be ultimately repayable out of profits. If the first year's trials are unsuccessful the loss to the country will, therefore, be limited to the £400,000 subsidy. Thus, at relatively trifling cost to the country, it should be possible to settle definitely, once and for all, whether or not airship services over long distances are technically and commercially possible. It is therefore to be hoped that the necessary arrangements with the Treasury may be completed, and without delay, so that a fresh start may be made.

Concerning the technical aspects of the scheme, we have on previous occasions called attention to the fact, stated in public by some of our greatest airship authorities, that many problems in the structural design of large airships still remain unsolved, and we are not quite convinced that airships of 5,000,000 cubic ft. capacity can be built without introducing experimental features. It is to be assumed, of course, that those responsible for the scheme have done all in their power to ascertain the feasibility of building ships of this size, but it would be reassuring if a plain statement could be made, setting out on whose authority the construction of such huge airships can be confidently contemplated. For our own part, we should like to see, simultaneously with the construction of larger ships, experiments carried out on such of our existing craft as are still in a condition which enables them to be re-conditioned. One year's research with full-scale ships should discover most defects likely to develop in the larger type, and in time for them to be remedied before construction had gone too far. It is, of course, possible that the large ships can be built with every prospect of success, but the undertaking would be less of a venture if the full-scale research, unfortunately dropped on the plea of economy, could be resumed and such data as are at present incomplete could be ascertained.

On the question of time, it must be borne in mind that before this country can undertake the construction of such large ships, very considerable extensions of existing sheds will have to be made, as we have no sheds large enough to take a fully erected airship of 5,000,000 cubic ft. capacity. The constructional work on the airship parts could probably be started with but little delay, as the large sheds could be got ready by the time the first airship was ready for assembly, but in any case it seems likely that at least eighteen months to two years will elapse—assuming the scheme to be finally sanctioned—before the first of the leviathans of the air is ready to make her trial trip.



at the

GOTHENBURG INTERNATIONAL AERO EXHIBITION.

"FLIGHT" is on sale at the Gothenburg Aero Exhibition at
MEDENS BOKHANDES A.B., inside Main Entrance,



GOTHENBURG

International

AERO EXHIBITION

~ ~ ~ ~ ~ 1923 ~ ~ ~ ~ ~



As we announced last week, owing to the idiosyncrasies of post office methods with "registered and expressed" letters, we had to go to press without the opening particulars of the various countries' exhibits. We gave the latter portion and a brief *résumé* of the opening by King Gustav. We are now able to supplement this by a few further notes from our representative at Gothenburg. Speaking of the day before the opening, he emphasises the international character of the show, which, he says, makes itself felt, not only by the appearance of the machines themselves, but also, and perhaps to an even greater extent, by the sound of the different tongues in which instructions are given. The sing-song Swedish predominates, but the more familiar sound of English and French, with here and there a direction or a greeting in throaty German, help to give a truly international atmosphere.

A round of the stands, he continues, shows that the British complement is complete, with the one exception of the Blackburn machine, which is rumoured to be held up by the strike, and thought to be still lying in the docks at Hull, awaiting shipment. Sweden is well forward with its machines, which almost without exception bear signs of strong German influence. Three machines, or rather two complete machines and the Duralumin hull of a flying boat, bear unmistakable signs of having been designed by Mjnheer Anthony Fokker, and although no signboard is up we conclude that they hail from the city on the Ij. We had hoped to see friend Koolhoven represented, but it appears that we are doomed to disappointment.

The building in which the aircraft are housed consists of a main hall, from the ends of which project, at right angles, two smaller buildings. The British section has been given the place of honour, right in the centre of the main hall, the French section being in the left-hand wing and the German in the right, with Holland, Czechoslovakia and Sweden grouped on each side of the British section, forming "buffer states" between Great Britain and France on the one hand

and Germany on the other. The Fokker stand very appropriately adjoins the first of the German stands, that of Dr. Junkers.

From here let our representative continue his report as originally written:—

July 20

The weather, which up till now had been perfectly lovely, with blue sky and a brisk breeze bringing fresh air in from the Kattegat, changed for the worse this morning. The blue sky, in which yesterday Mr. Bramson wrote the word "Capstan" for Major Savage's Sky Writing Company, was grey and dull as an English day in a 1923 June, and low rain-clouds held an unsubsidised race across the old city on the Götaelv. About 8.30 a.m. a Cacquot kite balloon lifts its flabby body into the air, but the beating rain soon persuades the crew to haul it down again. Altogether things do not look promising for the official opening of the Aero Show by H.M. the King of Sweden. By 10 a.m., however, the rain has left off temporarily, and His Majesty arrives and is conducted to the grand stand opposite the aircraft buildings, where the heads and representatives of exhibiting firms are introduced to him. After a brief speech, His Majesty declares the I.L.U.G. open, and with his suite proceeds on a tour of inspection of the stands.

On the British stand His Majesty is met by Mr. C. R. Fairey, Chairman of the S.B.A.C., and is conducted round to the various exhibits, in which he shows a lively interest. Particularly is he interested in the Handley Page slotted wing on the "Hanley," and in the amphibian gear on the Vickers "Viking," although it is quite evident that His Majesty does not miss any of the good points on the other British machines. The imposing Avro "Aldershot," the new Bristol Fighter, the Siddeley "Siskin" and the Gloucestershire "Grouse" are all examined with obvious appreciation, as are also the various engines, etc. After shaking hands with Mr. Fairey, and thanking him for the British participation in the Show, His Majesty proceeds to the other stands.

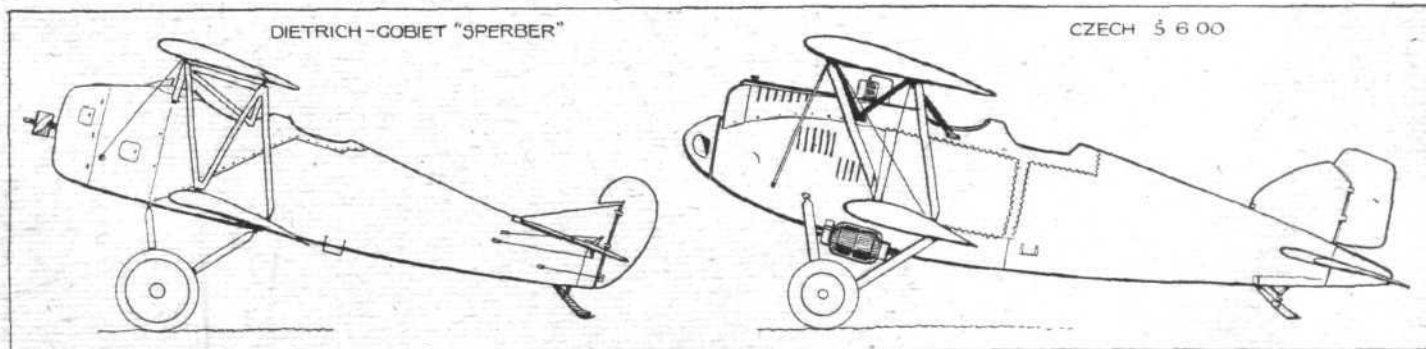
THE MACHINES

At the moment of writing, something like 40 complete machines are on view, and if all those which have been delayed turn up later, the total number should be in the neighbourhood of 50. The countries represented, and the number of machines, are as follows: Great Britain, 8; France, 8;

Germany, 12; Sweden, 4; Holland, 2; Czechoslovakia, 2; and Italy, 1.

Great Britain

As the British exhibits were dealt with in detail in last week's issue of *FLIGHT*, a brief mention of the machines,



AT GOTHENBURG: Two late comers to the show:—On the left, the German Dietrich-Gobiet, and on the right the Czech military type, S.6.00, which was flown to Gothenburg from Prague.

engines, etc., will suffice. The largest British machine is the Avro "Aldershot," with Napier "Cub" engine. Next in size come the Fairey III D and the Handley Page "Hanley" torpedo plane. The Blackburn, as already mentioned, has not yet arrived. The Vickers "Viking IV," with Napier "Lion," represents British amphibian machines, a type which should particularly appeal to the Scandinavian countries. The two-seater fighter is represented by the new Bristol Fighter, which is fitted with a Bristol "Jupiter" engine. In the single-seater class we have the Siddeley "Siskin," with Siddeley "Jaguar" engine, and the Gloucestershire "Grouse," with B.R.2 engine. All these machines are already known to readers of FLIGHT, the newest type being, perhaps, the "Grouse," which is very similar to the "Grebe" flown at the R.A.F. pageant, but fitted with a smaller engine. The upper wing is thin in the centre so as to give a good view forward, and the petrol tanks are mounted in the top plane, giving direct gravity feed through "Petroflex" petrol-proof flexible tubing. A number of British firms are represented by photographs on the walls around the British section, and particularly is the Supermarine display of photographs impressive. We are sorry that the new Supermarine "Sea Eagle" is not exhibited, but it is hoped that this machine will be flown over for the flying competitions that are to take place later on.

British engine constructors are represented by such varying types as Armstrong-Siddeley "Jaguar" and "Lynx," Bristol "Jupiter" and "Lucifer," Napier "Lion" and "Cub," Rolls-Royce "Eagle IX" and "Condor." It might be mentioned that the Rolls-Royce "Condor, Mark III" has now passed its Air Ministry type tests with flying colours. This engine develops normally 650 b.h.p., and weighs 1,336 lbs. complete.

The Aircraft Disposal Company has a stand separate from the main British section, and is exhibiting a Martinsyde F.4, and Siddeley "Puma," Hispano, and B.R.2 engines.

Of other British exhibits mention may be made of a number of Palmer aero wheels, which are now fitted to such a large percentage of the world's aircraft, of Leitner-Watts all-metal airscrews, of which two-bladed and three-bladed examples are shown. It is rather significant that but one firm of dope manufacturers is represented at the Show, and that firm our own "Cellon." Mr. Wallace Barr thus has the distinction of being sole representative of a very important industry. Perhaps this fact helps to explain why "Cellon" is known the world over.

France

WITH reference to the French section at Gothenburg, it must be admitted that the Show is disappointing. There is not a single new type represented, and in some instances we find types which ought to be in a historical museum, but not in a 1923 Aero Exhibition. For instance, the Breguet "sanitary aeroplane," the evergreen 14 T bis has made its appearance at nearly all the shows of the last five years. The only innovation which can be detected is that this particular specimen carries the identification letters S-ASAA, which we do not recollect having seen before.

Apart from his "sanitary bus," M. Breguet is represented by the "Sesquiplan" shown in Paris a couple of years ago. The machine does not appear to have undergone any modifications.

René Caudron is represented by three types, neither of which is new. The C.27 and C.60 are two-seaters with rotary engines, and the C.68 is the same little machine, with 45 Afzani, shown at the last Paris Show. It has folding wings, but is otherwise without special features.

Henry and Maurice Farman are represented by a single-engined cabin machine, the F.70, which is at least as ugly as the "Goliath," but probably just as effective. There are also a couple of "Skimmers."

Liore and Olivier show the Hispano-engined flying boat from the last Paris Show. With the exception that the pilot's view must be somewhat restricted, this machine seems to be one of the most commonsense of modern French flying boats.

An all-metal Hanriot, similar to that exhibited in the Grand Palais is shown in skeleton, and inverted for sand testing. In addition to aircraft, France is showing engines, both complete and in various stages of construction, as well as engine components and a number of "tableaux" illustrating French air lines.

Germany

IN spite of the restrictions imposed upon Germany, the German section at Gothenburg is of unusual interest, and it is a fact that but for German participation the Show would have been a dull affair, at any rate to British visitors and to readers of FLIGHT, who may be assumed to be familiar with all the French and most of the British machines exhibited. As

already mentioned, the Albatros and Heinkel machines have not put in an appearance at the moment of writing, and thus the German section is without two of its most interesting machines. Nevertheless, the remaining ones are worthy representatives of the German aircraft industry.

Of the three Junkers machines exhibited one is of the "Annelise" type, which paid a visit to Croydon some months ago in connection with Dr. Junkers' paper before the Royal Aeronautical Society. The machine was fully described in FLIGHT at the time, and it is therefore sufficient here to record its presence at the Show. It is, of course, a monoplane with thick cantilever wing placed low on the fuselage, and a cabin for four passengers.

The second Junkers machine is a smaller monoplane with the thick cantilever wing placed on the roof of the fuselage. The tiny cabin seats two passengers, and the pilot sits behind the wing. The engine is a radial air-cooled Siemens of 60-80 h.p.

Finally Dr. Junkers shows a small parasol monoplane two-seater school and sports model. This is known as the "Pinguin," and has the monoplane wing raised above the fuselage. The cockpit has two seats placed in tandem, but so far as could be ascertained the machine, although intended for school work, is not normally fitted with dual control. All three Junkers machines are built entirely of metal, the covering being the familiar corrugated Duralumin sheet.

Dornier Metallbauten of Friedrichshafen are represented by two types, both of which will be familiar to readers of FLIGHT. One is the "Delphin" flying boat cabin machine, with 185 h.p. B.M.W. engine, and the other the small three-seater "Libelle" (Dragonfly), with 60-80 h.p. Siemens radial engine. Both machines are monoplanes with the engine placed high, and with short wing roots growing out of the boat hull, and taking the place of the wing tip floats usual on British seaplanes. Both types have previously been illustrated in FLIGHT.

The Stahlwerk Mark firm show three small monoplanes of the Rieseler R III 22 type. These machines are parasol monoplanes, with flat twin Haacke engines of 30 h.p. It was expected that a more recent model, the R IV two-seater, would be exhibited, but so far this machine has not turned up. Possibly it will fly up for the competitions on August 4. The Rieseler machines have steel tube fuselages, but the wings have wooden spars and ribs. The machines shown are all standard production types, and we believe that quite a large number have been built.

The Caspar Werke of Travemünde show two different types, one of which, the type U.I cantilever biplane, was fully described and illustrated in FLIGHT recently. This machine is very neatly finished in three-ply wood, even to the wing covering, and looks a clean and workmanlike job. We still do not quite like the mounting of the top plane on a narrow "hump," objected to in the article referred to.

The second Caspar machine is a cabin monoplane with cantilever wing. It is known as the C.L.E.11 L, and seats two passengers in a tiny cabin. The pilot's cockpit is aft of the wing. This machine is also finished in veneer, and is characterised by straight lines and flat surfaces. Both machines are fitted with radial Siemens engines.

THE BRITISH CONTINGENT AT GOTHENBURG Sweden's Wonderful Hospitality

WE do not know what was the reception given to the representatives of other countries by their Swedish hosts during their stay. What we do know is that the days spent in Gothenburg by the British contingent will never be forgotten by those who had the good fortune to be present during the first week of I.L.U.G. From the day of arrival until their departure, one week later, members of the S.B.A.C., heads and representatives of British firms, and British officials were received with open arms and given a practical demonstration of that Swedish hospitality of which many had heard, but which few had previously experienced. To begin with, all the British representatives were made honorary members of the Gothenburg Golf Club, and were thus able to enjoy the popular pastime in the company of their Swedish friends. Luncheons and dinners were the order of the day, and at least one excursion was made which will linger in the memory of all. Nor was all this hospitality of an official and ceremonious kind. On the contrary, the guests were made to feel that their hosts genuinely welcomed them, and many friendships were formed which will endure in the years to come. We are quite certain that not a single British visitor during that first week can have returned with anything but the most pleasant memories, and should the opportunity ever occur of returning the compliment, it is to be hoped that Swedish visitors to these shores will be given as good a time



BRITAIN AT I.L.U.G. : This interesting group was photographed after a luncheon given at the Gothenburg Botanical Gardens by the Society of British Aircraft Constructors to their Swedish friends, who had previously entertained with true Swedish hospitality the British contingent to several banquets, excursions, etc. The most cordial spirit between guests and hosts reigned, and the friendships established during the visit of the British representatives to Gothenburg will, we feel sure, be sincere and lasting. Reading from left to right the names of the members of the luncheon party are :—

Top row : Mr. H. R. Wright, Mr. M. L. Bramson, Lieut. N. J. Wesström, Mr. L. Brawne Lindon, Lieut. C. G. Wigert, Mr. A. J. A. Wallace Barr, Lieut. J. H. Sundin, Mr. R. R. Rhodes, Lieut. N. Ericsson, Capt. F. Y. Tellander, and Mr. E. Dove.

Second row (standing) : Lieut. E. Nordquist, Lieut.-Col. K. A. B. Amundson, Capt. S. Åsbrink, Lieut. J. C. O. Philipson, Capt. C. A. Abot, Mr. H. T. Vane, C.B.E., Commander Capt. Thor Lübeck, Lieut. C. Florman, Capt. G. von Porat, Capt. H. Beyer, Director J. Lithander, Mr. John Lord, Mr. C. M. Poulsen, Mr. Knut Petterson, Capt. L. Jacobson, Mr. D. Tenow, Mr. H. Kershaw, C.B.E., Capt. F. Faber and Dr. T. Malmer.

Third row (seated) : Mr. F. Handley Page, Colonel E. C. Erikson, Major-General Sir W. S. Brancker, K.C.B., Mr. C. R. Fairey, M.B.E., Mr. Dan Broström, Capt. P. D. Acland, Baron S. G. Ramel and Mr. C. R. Cramér.

Bottom row (seated) : Mr. C. G. H. Winter, Capt. E. F. Thorell, Mr. E. N. T. Vane, Major H. Jullerot, Mr. J. T. Brown, Mr. Alan Cobham, Mr. W. Lappin, Ing. E. Bergendahl, Ing. G. V. Nordensvan, Mr. Kurt Walles and Mr. G. P. Lundh.

as that which they so generously and bountifully gave Britain's representatives at I.L.U.G.

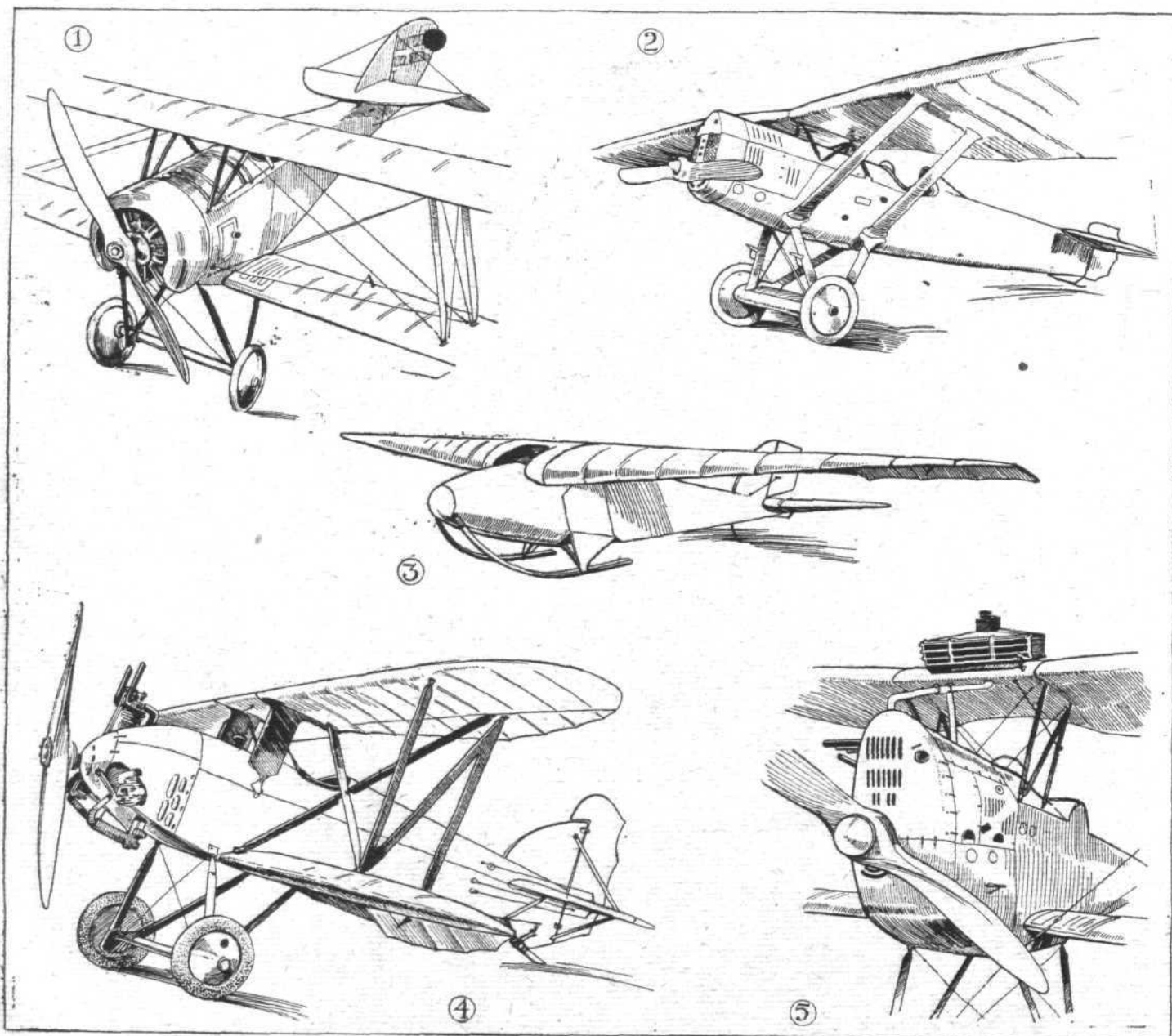
For our own part, we wish to thank the I.L.U.G. officials for the unstinted assistance which representatives of FLIGHT were afforded. Every facility that one could wish for was provided, and of official interference—such as one has on more than one occasion experienced at other aero shows—there was absolutely none at Gothenburg. If, therefore, we have been able to compile a very thorough report on the exhibition, and illustrate it by numerous sketches, this is in no small measure due to the exceptionally favourable conditions under which our representatives were able to work, thanks to the freedom from those annoying, though trifling, interruptions by officials asking to be shown permits, passes, etc. Particularly do we wish to express our indebtedness to Lieut. Florman, who was ever ready with introductions, advice and assistance, and to the General Secretary of I.L.U.G., Kamrer Cramér, to whom we are indebted for Press passes admitting our representatives not only to the Aero Exhibition, but also to the main Jubilee Exhibition and all its sub-sections.

By way of placing on record some of the events of the week spent at Gothenburg, we give below what must of necessity be but the briefest *résumé* of the principal happenings, and which could not hope to do justice to the subject. The first British arrival was undoubtedly General Sir Sefton Brancker, who, as recorded last week, flew over on Wednesday, July 18, in a D.H.9 piloted by Cobham, taking but 7 hours to do the journey. Already on the Thursday morning General Brancker was inspecting the machines as they were being

erected on the various stands. The majority of the British contingent arrived by steamer direct from Tilbury on Thursday, July 19, and were quartered at the Grand Hotel. Mention has already been made of the fact that the British visitors were made members of the Gothenburg Golf Club, the first rounds being played on the afternoon of the opening day.

After being present at the official opening of the Exhibition by King Gustav of Sweden on Friday, July 20, the British visitors were entertained at lunch by Mr. Dan Broström, who is a big shipping magnate and one of Sweden's richest men, but who is personally one of the most charming and modest of men.

In the evening some 300 guests assembled in the main restaurant of the exhibition at an official banquet, presided over by General Wrangel, who welcomed the guests and gave the Royal toast. After that the air representatives of the various Powers were welcomed by Mr. Dan Broström (in French), by Mr. Ivar Lignell (in English), and by Captain Åsbrink (in German). Of the guests M. Pitois spoke on behalf of France, and General Brancker on behalf of the British visitors. General Brancker, whose free and easy manner and racy delivery greatly delighted all present, recalled that some 1500 years ago the old Vikings set out from Gothenburg for England, and that now he and his friends had come to return the visit. Speeches were also delivered by Germany's representative, Herr Nadolny; by Italy's representative, Marquis Denti di Piraino; and by representatives of the other countries taking part in the exhibition. After the banquet the



AT GOTHENBURG: Some of the Swedish machines: 1. "Tummeliten," a school biplane with rotary engine. 2. The monoplane single-seater fighter, J.23, which has a 185 h.p. B.M.W. engine. 3. The glider "Louis." 4. The Nordiska Phoenix school biplane, with Bristol "Lucifer" engine. 5. The two-seater fighter, type S.21, which is fitted with a 230-300 h.p. Maybach engine.

guests proceeded to the Rotunda, where dancing went on until the small hours of the morning.

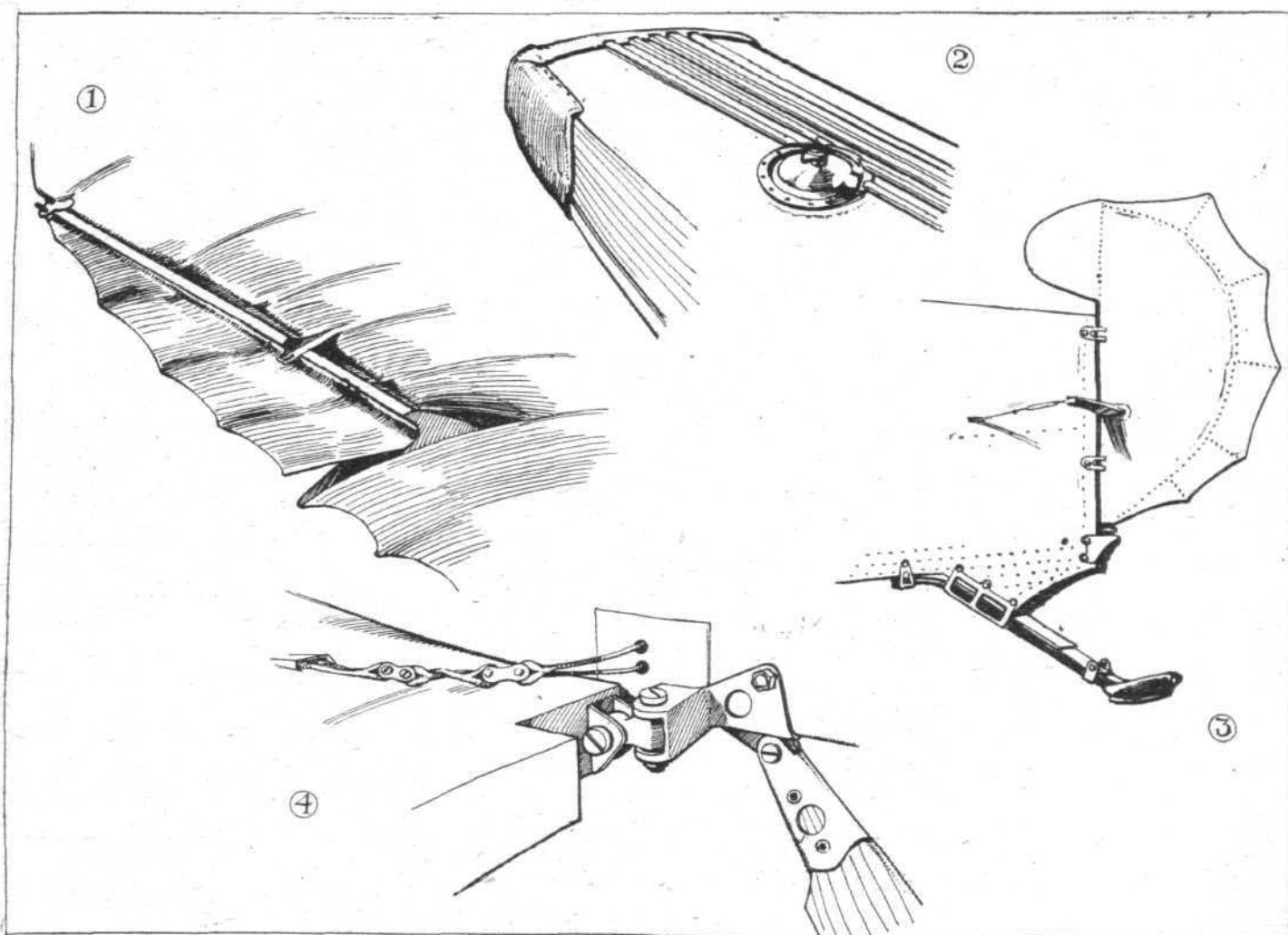
On Saturday, July 21, Mr. Ivar Lignell invited the British guests to golf at the Gothenburg Golf Club at Hofas, and on Sunday, July 22, Captain Lubeck entertained the British guests to an excursion to Marstrand on a mine-sweeper. At Marstrand the visitors enjoyed a swim *au naturel*, amid great amusement, and the return journey to Gothenburg was made on the torpedo-boat "Plejad," the course being laid outside the islands in a very rough sea.

On Monday, July 23, the S.B.A.C. gave a luncheon at the Botanical Gardens to their Swedish friends. Mr. Fairey presided, and expressed the thanks of the British visitors for the hospitality and kindness shown them. He caused great amusement by referring to the return trip on the previous day, and to the compliment paid the representatives of a sea-faring nation by taking them outside the islands, saying that perhaps he could best describe their sensations by saying

AIRCRAFT AT GOTHENBURG

Detail Report by the Technical Editor

In last week's issue of *FLIGHT* we gave a side-view and a brief reference to every machine exhibited at the time of going to press. Since then a few changes have been made, certain machines having been removed from the exhibition and others added. Even so the list is not quite complete, as there were several machines missing when we left Gothenburg last week. The Blackburn machine had not yet arrived, but it was hoped that it would be in time to be on view during a few days towards the end of the Aero Show. The Heinkel seaplane also was still missing, and no news had been received as to when it might be expected. Two Albatros machines were to have been shown, but one of these was detained (probably even confiscated) by the International Commission of Guarantees, the reason given being that the machine, the type L.58, has a radius of action of 650 km., while the maximum permitted to German machines is 600 km. If this be



AT GOTHENBURG: Some Swedish constructional details:—1. The very small slotted aileron of the J.23. 2. The padded nose of the floats on the Hansa-Brandenburg seaplane. 3. Unusual construction of the rudder of S.21. 4. The folding hinge and aileron cables on the Nordiska Phoenix.

that they were compelled to swallow their feelings. He particularly wished to thank Lieut. Florman for working so hard and so effectively to get Britain to participate in the exhibition, and also expressed his thanks to General Brancker. In England, Mr. Fairey said, we were always thanking General Brancker. That was due to the fact that the British Government was even slower than the British people, and therefore when we wanted anything done we spoke of it to General Brancker. It was then done at once, and then we thanked General Brancker.

General Brancker proposed the toast of King Gustav, and Mr. Dan Broström that of King George. Mr. Broström expressed the hope that Britain and Sweden would be drawn more and more together, and pointed to the feeling of goodwill which Sweden, and particularly Gothenburg, had towards Great Britain. In proof of the sincerity of this feeling he explained that in Sweden Gothenburg was often referred to affectionately as "Little London."

the true reason for the detention of the machine, it seems to be a piece of officialism which will be deprecated by all fair-minded people. At any rate, whatever the reason, the machine will not, we are informed, be sent to Gothenburg, and by way of a protest the Albatros works have decided not to send the small "trousered" monoplane either. The Caspar works intended to exhibit a 10-seater commercial monoplane, but this had not put in an appearance when we left. This machine has been built in Denmark, and is, as regards general design and shape, a larger edition of the monoplane described in this issue. The Gabardini stand was also empty, and the Savoia was the only Italian representative at the exhibition. On the Czechoslovakian stand certain changes had taken place, the commercial A.10 having been removed and a military type (the S.6.00) substituted. On the Baumer Aero stand a Dietrich biplane had appeared, but as this machine is of ancient design and fitted with a monosoupape engine its *raison d'être* is difficult to discover.

Last week FLIGHT was the only journal, of any nationality, to publish a complete report of all machines shown. This report was, however, necessarily somewhat brief, and in the present and subsequent issues we propose to devote space to a more detailed reference, illustrated by sketches, to such machines as appear to merit closer inspection. Certain machines, notably among the French exhibits, were of old and well-known types, already familiar to readers of FLIGHT, and we do not in such cases intend to do more than mention their presence at the exhibition.

The Swedish Exhibit

On the Swedish stand four complete machines were exhibited, and a few days after the opening of the Aero Show a monoplane glider made its appearance, bringing the total up to five machines. To these must be added a small side-by-side school biplane shown on a separate stand, and built by the Nordiska Phoenix Aktiebolaget of Gothenburg. Thus in all six machines carrying the Swedish flag on their rudders were staged at I.L.U.G.

Of the four power-driven machines, one was a monoplane of unmistakable German influence in design. In fact, we heard it stated that the majority of the parts had been made in Germany and sent to Sweden, where the machine was erected by the Svenska Marinens Flygväsen. It was to all intents and purposes a Hansa-Brandenburg twin-float seaplane of monoplane type, with the wing placed low as in the machines surrendered to England, of which examples were, at one time, to be found at Isle of Grain. Being of fairly ancient type, and presenting no novel features, the Swedish Hansa-Brandenburg seaplane does not appear to call for further comment.

If the single example of "Swedish" design and construction shown by the Naval Aircraft Works possessed but little interest, the same cannot be said of the three machines exhibited by Häreus Flygväpens Flygverkstäder of Malmöslätt. If these machines still bear traces of German influence in design, they do, at least, indicate individual thought on the part of the designers, and an attempt has quite obviously been made to break away from the stereotyped, and to evolve new features. This applies particularly to the monoplane, the type J.23, which is a strut-braced parasol monoplane, possessing such modern features as streamline fuselage and thick wings tapered off to the tips and centre as in the latest British monoplanes, such as the Bristol and Hawker machines. It was difficult to determine with any degree of accuracy the wing section used, but at the point of greatest depth, i.e. where the bracing struts were attached, the section appeared to resemble one of the Göttingen, or Joukowski, aerofoils.

A remarkable feature of the J.23, shared by the larger biplane, was the slotted ailerons, which, although possibly infringing the Handley Page patent, differed from the H.P. slotted ailerons as we know them by the fact that as the aileron was moved up or down the size of the slot did not change. While experiments in this country have shown the slotted ailerons to be very effective, it may be doubted whether the ailerons on the Swedish J.23 are of sufficient area. From one of the accompanying sketches it will be seen that the

shape of the ailerons on the J.23 are of approximately triangular plan form, and as the length of each aileron cannot be much more than 3 ft. the area is quite small. Similar remarks apply to the rudder of almost all Swedish machines, which appear to be ridiculously small according to British standards. Reference was made in our Editorial Comments last week to this fact, and it was not surprising to learn, from one with practical experience of Swedish naval and military aviation, that spins frequently occur, and, unfortunately, often with serious results. While the small control surfaces may be, and probably are, sufficient at high speeds, it is inconceivable that they can have sufficient power at or near the stalling speed. Consequently it would seem probable that pilots are not able to make use of the lowest speeds at which the machines are capable of flying.

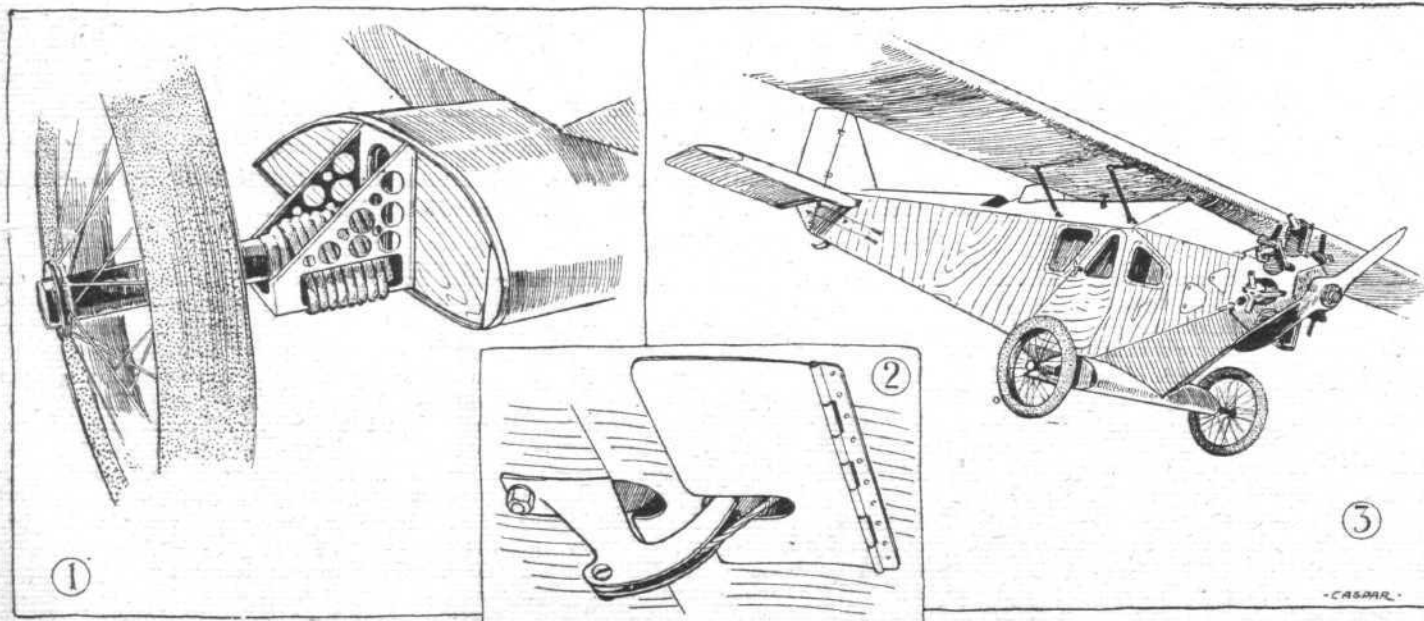
The fuselage of the J.23 is of elliptical cross section, and is constructed of three-ply panels over a light framework of stringers and formers. A specimen of such a fuselage was exhibited in the scientific section, and the workmanship of this was of a very high order of excellence.

No figures relating to wing area were available, but the following performance figures are of interest, and indicate that the machine must be of more than ordinary efficiency to attain the speeds claimed for it, bearing in mind that the engine is a B.M.W. rated at 185 h.p. only. This engine is of the high-compression type, and maintains its power up to considerable altitudes, but the performance, if really attained, is one nevertheless of which the designers have good cause to be proud.

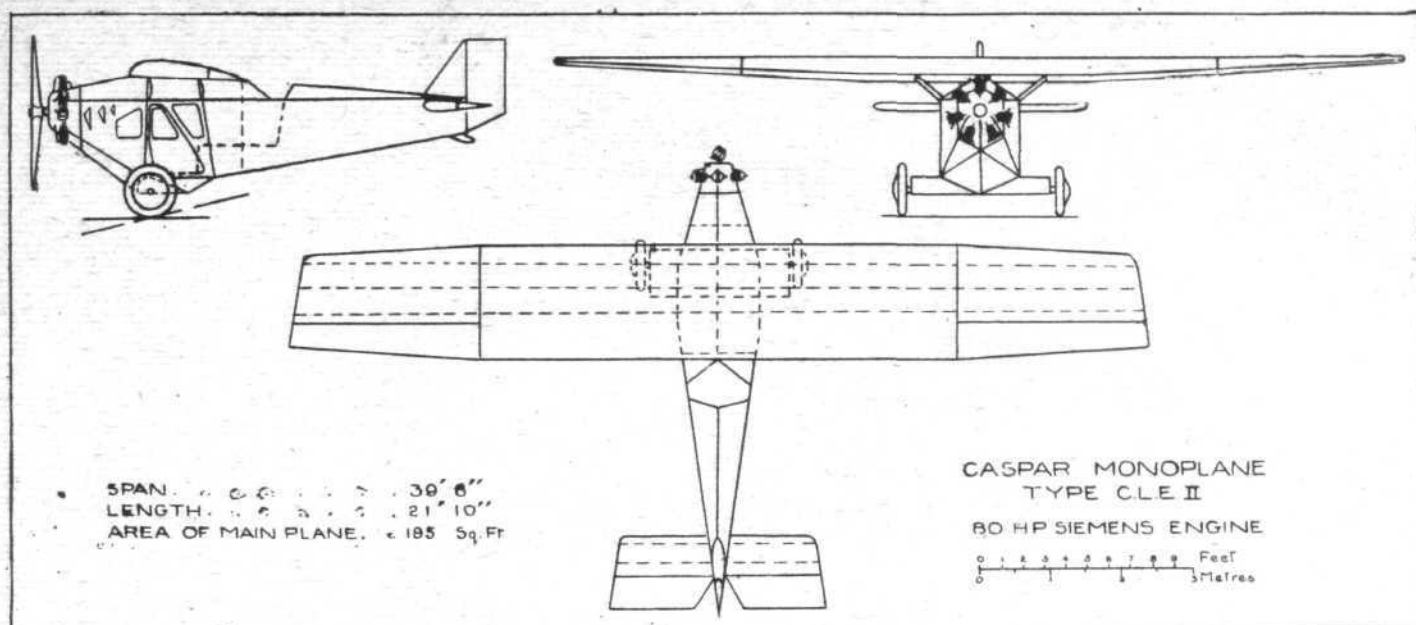
The weight of the J.23 is 760 kg. (1,670 lbs.) empty and 980 kg. (2,160 lbs.) loaded. The speed at 1,000 m. (3,280 ft.) is stated to be 220 km. (136.4 m.p.h.), and at 3,000 m. (10,000 ft.) 250 km. (155 m.p.h.). The ceiling is given as 8,000 m. (26,300 ft.). The machine is armed with two synchronised machine guns, the sights for which are of very elementary type, placed on each side so that the pilot can sight from either side.

The second large machine is a two-seater fighter and reconnaissance biplane with Maybach engine (240-300 h.p.). It does not present any very unusual features, except that the rear portion of the fuselage is of triangular section, the lower longerons converging rapidly just aft of the gunner's cockpit. The radiator is mounted on the nose of the top centre-section, which gives the machine a somewhat German appearance. The main characteristics of this machine, the S.21, are as follows: Engine, 230-300 h.p. Maybach; weight of machine empty, 1,100 kg. (2,210 lbs.); weight fully loaded, 1,600 kg. (3,520 lbs.); speed at 1,000 m., 170 km. (105 m.p.h.); speed at 3,000 m. (10,000 ft.), 180 km. (111 m.p.h.); ceiling, 6,500 m. (21,300 ft.).

A small school machine, a single-seater with 90 h.p. Thulin-Rhone engine, was also exhibited. This machine is of orthodox design, and is only remarkable for the fact that ailerons, which run the whole length of the wings, are fitted to the bottom plane only. The machine is known as the "Tummeliten," and is said to be very easy to fly, and to be capable of all the modern stunts, such as looping, spinning, rolling, etc. The single-bay bracing is in the form of stranded



THE CASPAR COMMERCIAL MONOPLANE: 1 Shows the arrangement of the rubber shock absorbers on the end of the wing-section fairing over the axle. An aileron crank lever is shown in 2, while 3 is a perspective view of the machine as she was exhibited—on a steep left-hand banked turn.



The Caspar type C.L.E. II commercial monoplane : General arrangement drawings.

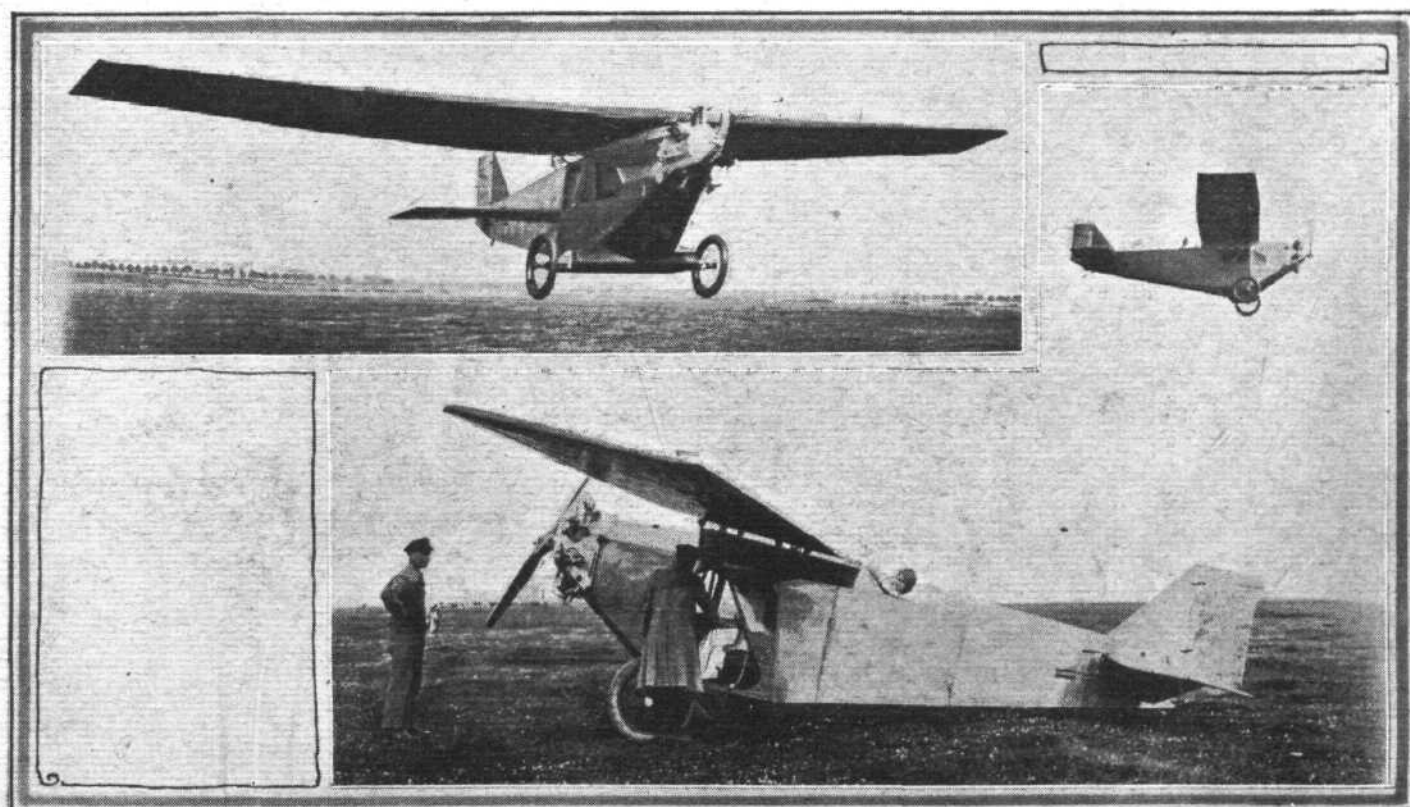
cables. The characteristics of "Tummeliten" are as follows : Weight empty, 380 kg. (837 lbs.); weight loaded, 515 kg. (1,130 lbs.); speed at 1,000 m., 160 km. (100 m.p.h.); at 3,000 m., 155 km. (96 m.p.h.); ceiling, 5,000 m. (16,400 ft.).

The exhibits on the main Swedish stand were completed by a monoplane glider known as "Louis." This glider was of very clean design, with a tapering wing, very thick in the centre and of Göttingen section. We failed to discover how the wing is removed from the fuselage, as it appeared to be built integral with it. This, however, could obviously not be the case. The fuselage was of circular section in front, running into a triangular section aft of the wing. The vertical fin was ply-wood covered, and built integral with the fuselage. It is not known whether or not any flights have yet been made with "Louis."

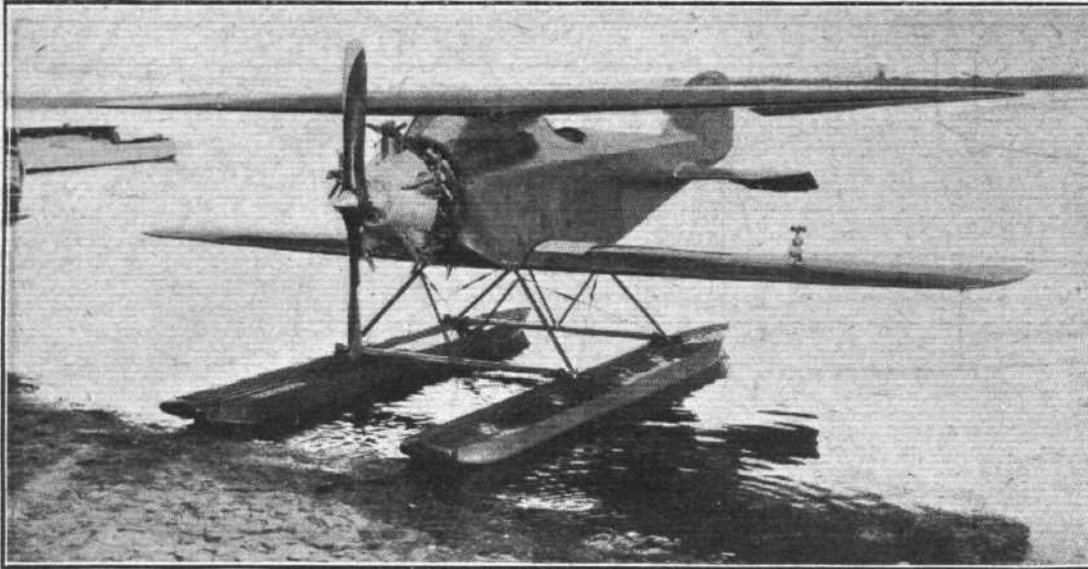
As far as actual machines are concerned, Sweden's contribution to the Show was completed by a small side-by-side school biplane exhibited on a separate stand. This machine was stepmotherly treated in the matter of attendance, as we

could never find anyone in charge of the stand, and no information was available beyond a brief announcement tacked to the fuselage, which stated that the machine was built by Nordiska Phoenix of Gothenburg. The engine fitted was a Bristol "Lucifer" of 100 h.p.

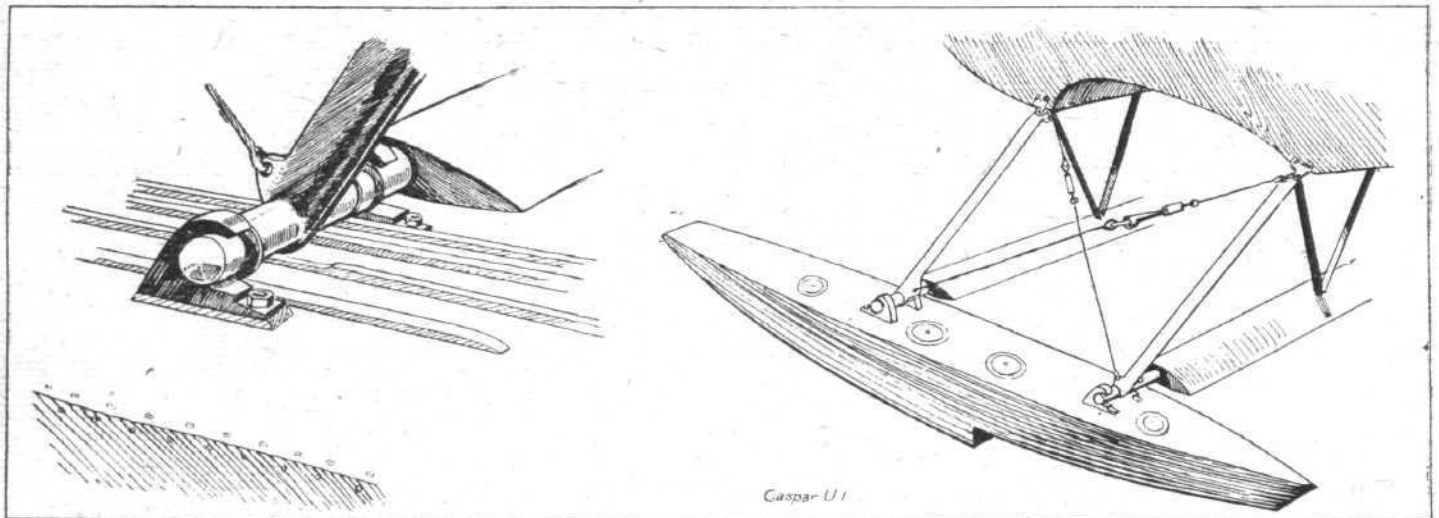
The Nordiska Phoenix biplane is of the single-strut type, with folding wings, but the wing bracing is unusual, in that but two diagonal tubular bracing struts are used on each side, the anti-lift struts running through, while the lift struts are divided where they cross the others. The lift struts are attached at their inner ends at the point of attachment of the front spar to the body, and at their outer and upper ends to the rear spars, where the inter-plane struts meet these. The arrangement should be clear from the accompanying sketches. Precisely what the designers had in mind in designing this form of bracing is not clear, and it would appear that the wings would not be very good in resisting torsion. The aileron cables are not interfered with when the wings are folded, as they emerge from the wing and run into the fuselage



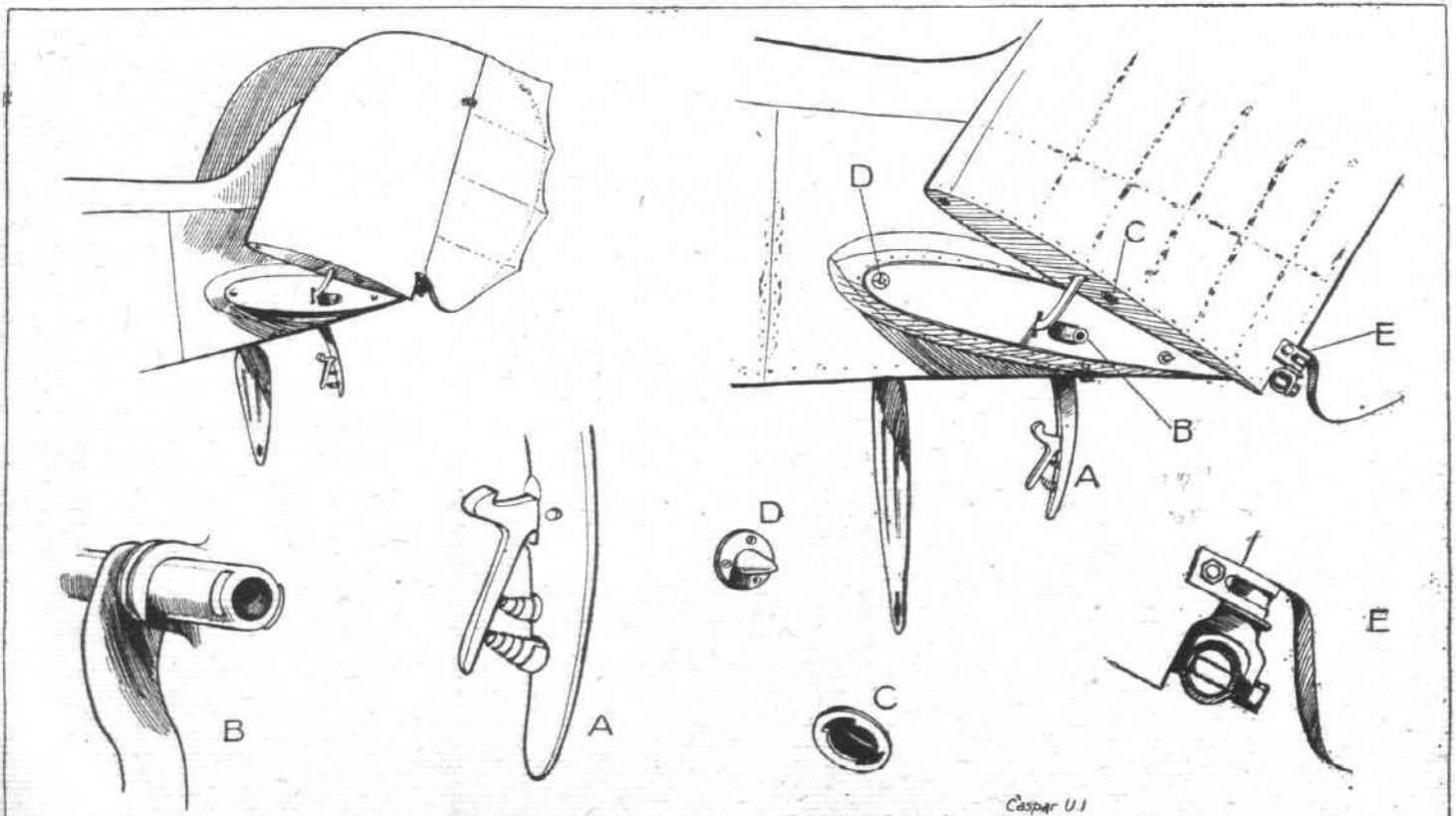
THE CASPAR MONOPLANE THREE-SEATER : The machine taking off, and below side view on the ground ; inset, in flight.



The Caspar U.1 cantilever biplane: This machine can be dismantled, without using a single tool, by four men in 1 min. 10 secs. The engine is mounted on a swivelling mount, somewhat after the fashion patented by Boulton and Paul, Ltd.



THE CASPAR SEAPLANE: Details of float attachment.



THE CASPAR TYPE U.1 SEAPLANE: Some constructional details. The whole of the machine can be dismantled without the use of tools. Our sketches show the details of the folding tail plane. When a trap door in the bottom of the fuselage is opened the lever A can be pulled down, and thereby releases the bayonet joint BC. The tail is then free to be swung upwards, as the elevator tube has a universal joint at E. Short pegs or dowels, D, take the shear at leading and trailing edges when the tail is spread.

at the rear spar, where the hinge is situated. The petrol tank is mounted in the top centre section, with a feed pipe running down from each side, along the centre-section struts.

THE GERMAN SECTION

REFERENCE has already been made to the good showing made by the German constructors, especially taking into consideration the handicaps imposed upon Germany, not only by the limitations on power, range, etc., but also by economic conditions. It is therefore all the more creditable that the German section at Gothenburg is, after the British, one of the most interesting. Space does not permit, this week, of dealing with more than one of the German firms, the Caspar Werke, but next week we hope to give a detailed reference to the other German machines exhibited.

The Caspar Machines

While the all-metal German school is represented by Dornier and Junkers, the all-wood school has found a worthy champion in the Caspar Werke of Travemünde, of which Generaldirektör Dr. Ing. N. C. Carl Caspar is the moving spirit. It should be stated that both the machines exhibited were designed by Ernst von Loessl, who is a relative (cousin) of the von Loessl who lost his life in a glider accident in the Rhön some years ago. Both machines are built almost entirely of wood, with, of course, the exception of a few fittings that must necessarily be made of steel.

The Caspar U.1 was described and illustrated in our issue of June 14, 1923. A few supplementary details, as revealed by a closer inspection at Gothenburg, may, however, be of interest. The Caspar U.1 was designed for use from a submarine, or from a ship of the mercantile marine wishing to have available a seaplane for carrying urgent messages to port when the ship is still some distance out to sea. The machine is a cantilever biplane of exceptionally clean lines, and has been especially designed for ease of erecting and dismantling, these operations being possible without the use of any tools with the exception of a spanner for turning the propeller boss nut through an angle of 90°. The U.1 is covered entirely with three-ply wood, and while this provides a very beautiful finish, it is scarcely the best material for use at sea. In fact, our experience in England has been that three-ply is not suitable for use on seaplanes. Trouble may therefore be experienced with the Caspar U.1 on this score, specially with the floats. Otherwise the design is very pleasing to the eye and well thought out.

One of our sets of sketches shows the details of the folding tail plane. A form of bayonet joint holds the tail in place, and when this is unlocked, by means of a lever, the tail can be swung up, as there is a universal joint in the elevator tube, and is locked in position by a flat curved strut having a notch engaging with a pin, and pressed into position by a spring so as to lock automatically as soon as the tail plane is in its vertical position.

A somewhat similar arrangement is used for securing the main planes to the fuselage. The movement of a single lever, placed under the forepart of the body, releases the catches, and both wings can be pulled off. In the case of the float attachments these also come adrift without using tools, a quick-release turnbuckle in one of the diagonal cables allowing the floats to be removed and the float struts folded. This is the subject of a sketch. After giving a nut on the propeller hub a 90° turn with a spanner, the propeller can be removed.

The engine, a five-cylinder Siemens radial of 60 h.p., is mounted on a swivelling mount, but two petrol joints have to be broken before the engine can be swung out. The machine, as already stated, is of exceptionally pleasing lines, and but for the doubt as to the suitability of the three-ply covering for a seaplane, the U.1 is a very fine little machine.

The second machine exhibited by the Caspar Werke is a commercial monoplane of small capacity, the cabin being arranged to carry but two people, seated *vis-à-vis* one another in a very narrow cabin. This machine is known as the type C.L.E. II, and is fitted with a Siemens radial seven-cylinder engine of 80 h.p. Thus the power expenditure per paying passenger is but 40 h.p., which should be a good commercial proposition. If the machine is piloted by its owner, and used for touring with a couple of friends, so that it becomes legitimate to count in the pilot in the useful load, the economy becomes even greater, *i.e.*, 26.7 h.p. per occupant. Thus, for use on feeder lines joining up with main air routes, on which there is insufficient traffic to make a larger machine pay, the Caspar C.L.E. II should be a very useful and economical little machine.

As cheapness of construction was one of the desiderata, and clean aerodynamic design another, Ingenieur von Loessl chose the cantilever monoplane type, but incorporated a fuselage composed entirely of straight lines and flat surfaces, which could be easily and cheaply covered with ply-wood panels. It is, of course, well known that these panels can be bent around a cylinder but not around a barrel, *i.e.*, not around a double curvature. Nevertheless, if the panels can be used without bending, their application to the internal framework becomes so much easier. In the C.L.E. II the fuselage is of rectangular section, with an inverted V roof and a V bottom in the forward part. Aft of the undercarriage the bottom is flat.

The undercarriage is of the form first made popular by Dornier, *i.e.*, the axle is enclosed in a casing of thick aerofoil section, and the rubber shock absorbers are attached to the ends of this, cantilever fashion, giving a wide wheel track.

The wing is in three sections, a large centre portion and two relatively small end pieces, attached to the main wing by special quick-release fittings. In the centre, above the "roof tree" of the fuselage, the wing is attached by simple hooks, and is braced farther out by struts sloping out at a fairly flat angle.

Behind the trailing edge of the wing is the pilot's cockpit, and immediately under the wing the tiny cabin with accommodation for two passengers. The space is rather cramped, especially as regards leg-room, and also to a certain extent as regards head-room. One passenger faces aft and the other forward, and the cabin is of only sufficient width to give elbow space, and not much of that if the passengers be Germans of average bulk. As in the case of the biplane, the monoplane is covered entirely with three-ply, and it was noticed that in the bottom of the fuselage there were no diagonal members to stiffen the ply, which was not more than 1 or 1½ mm. thick.

The main characteristics of the Caspar C.L.E. II are as follows: Weight, empty, 450 kg. (1,000 lbs.); useful load, 360 kg. (790 lbs.); total loaded weight, 810 kg. (1,790 lbs.). The maximum speed is 160 km. (100 m.p.h.), and the landing speed 80 km. (50 m.p.h.). The range is approximately 800 km. (500 miles).

(To be continued.)



Married

JOHN REGINALD CASSIDY, R.A.F., youngest son of Mrs. Cassidy, of Queensland, Australia, was married on July 19, at St. Joseph's Church, Redhill, to BARBARA MARGARET, elder daughter of HARVEY RICHARD and Mrs. DREW, of Margery Wood, Reigate.

Lieut.-Col. E. R. PEAL, C.B.E., D.S.C., late R.A.F., was married on July 30, at St. Paul's Church, Knightsbridge, to Miss KATHLEEN HELEN KIRWAN.

To be Married

The engagement is announced between PHILIP G. MARR, late Capt., R.A.F., younger son of the late Alexander Marr

and Mrs. L. E. Marr, of Englefield Green, Surrey, and ESTELLE AGNES, second daughter of the late Sir CHARLES CAYZER, Bt., and MABEL LADY CAYZER, of Woodbury, Farley Hill, Berks.

The marriage of Flight-Lieut. AUGUSTUS HENRY ORLEBAR, A.F.C., R.A.F., and Miss TATTIE COOPER will take place at St. Martin-in-the-Fields on August 22, at 2.30 p.m.

Item

Commander DON EDGARDO VON SCHROEDERS, Naval and Air Attaché to the Chilean Legation, has left London for Gothenburg to represent his Government at the International Air Exhibition.

AERIAL DERBY AND AUGUST BANK HOLIDAY MEETING

ON Monday next, August Bank Holiday, the eighth Aerial Derby, or Circuit of London, will be flown. Originally it was intended to have the start and finish at Hendon, but it has now been decided to make Croydon the starting and finishing point, owing, we understand, to the better landing surface at the latter 'drome. No doubt this is a point of some importance, seeing that two or three of the machines which will—all being well—be flying in this year's race have a speed exceeding 200 m.p.h. At the same time, as far as our personal feelings are concerned, we cannot help being disappointed at not seeing the Aerial Derby back again at Hendon. Hendon should be the centre of sport flying, and if the ground were only levelled up a little, etc., we should think it would be an ideal aviation meeting ground—especially in view of the fact that the "Underground" will shortly have a station practically outside the gate.

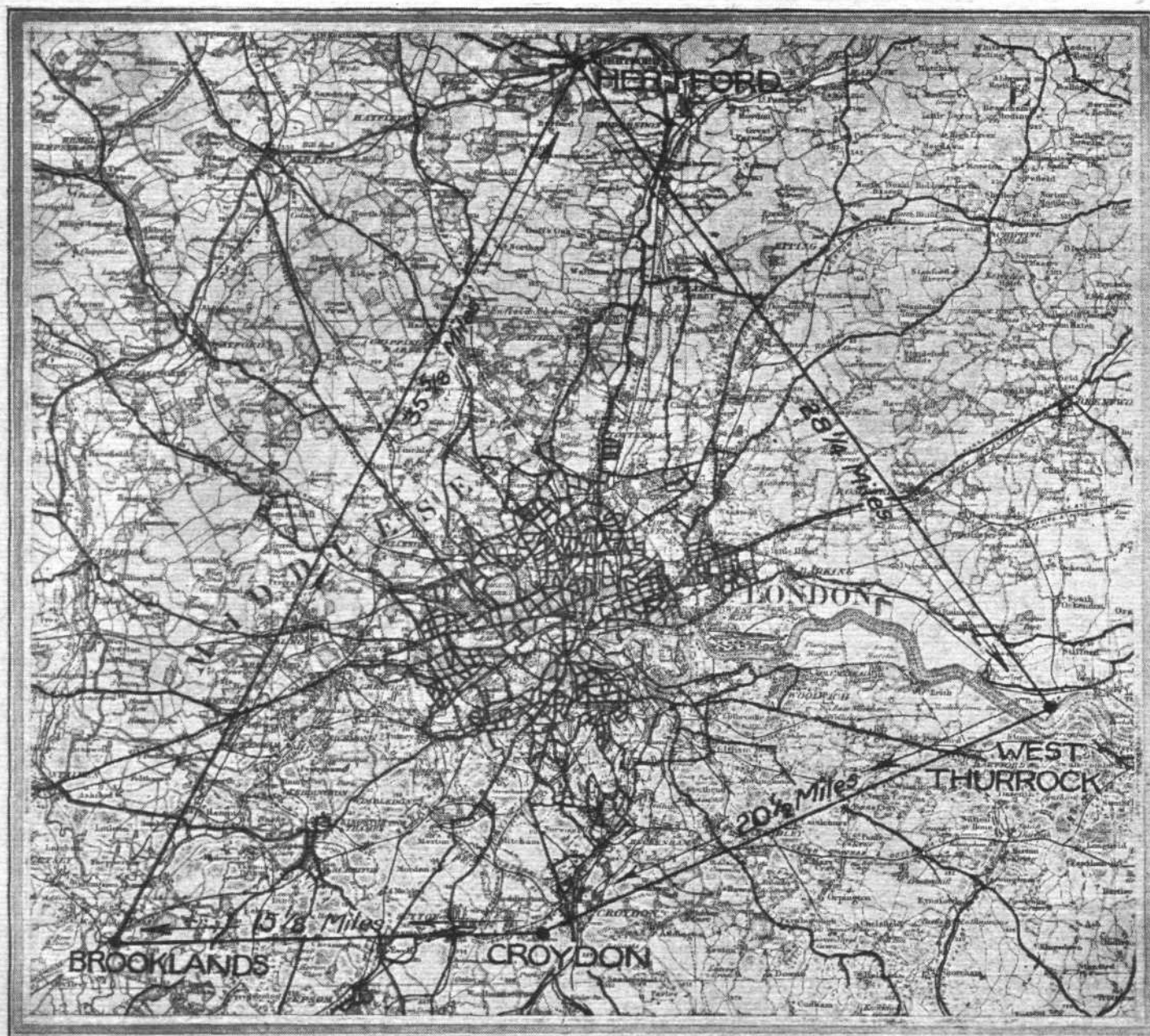
However, as regards this year's Derby. A slight modification has been made in the course this year. There will be now three turning points instead of four, Epping having been "cut out" of the course. The circuit will therefore be as follows: Waddon Aerodrome, Croydon, to Brooklands (15½ miles), Brooklands to Hertford (35½ miles), Hertford to West Thurrock (28½ miles), and West Thurrock to Croydon (20½ miles), and as this circuit will be covered twice, the total distance will thus be 199 miles. The first machine is timed to start at 1.45 p.m.

As on previous occasions, the Derby consists of two sections as far as prizes are awarded, one for absolute fastest time, and the other on handicap time.

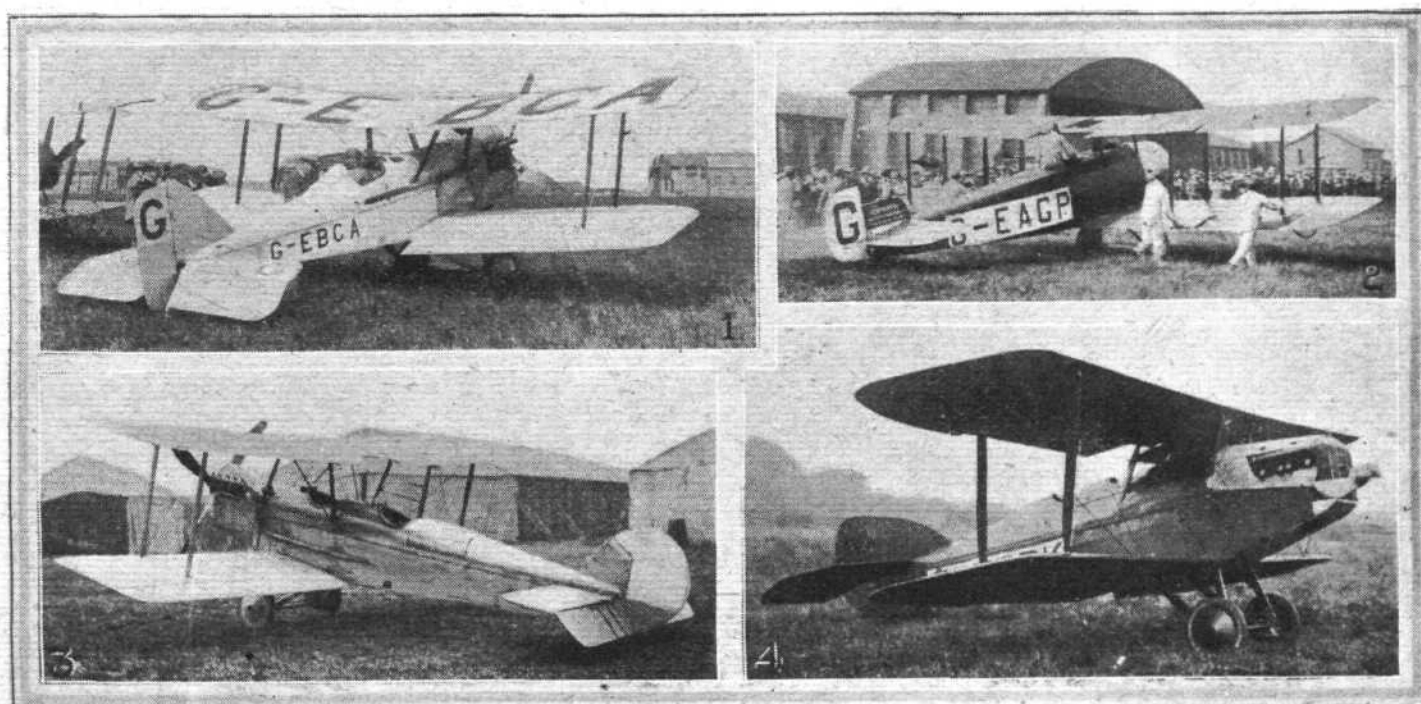
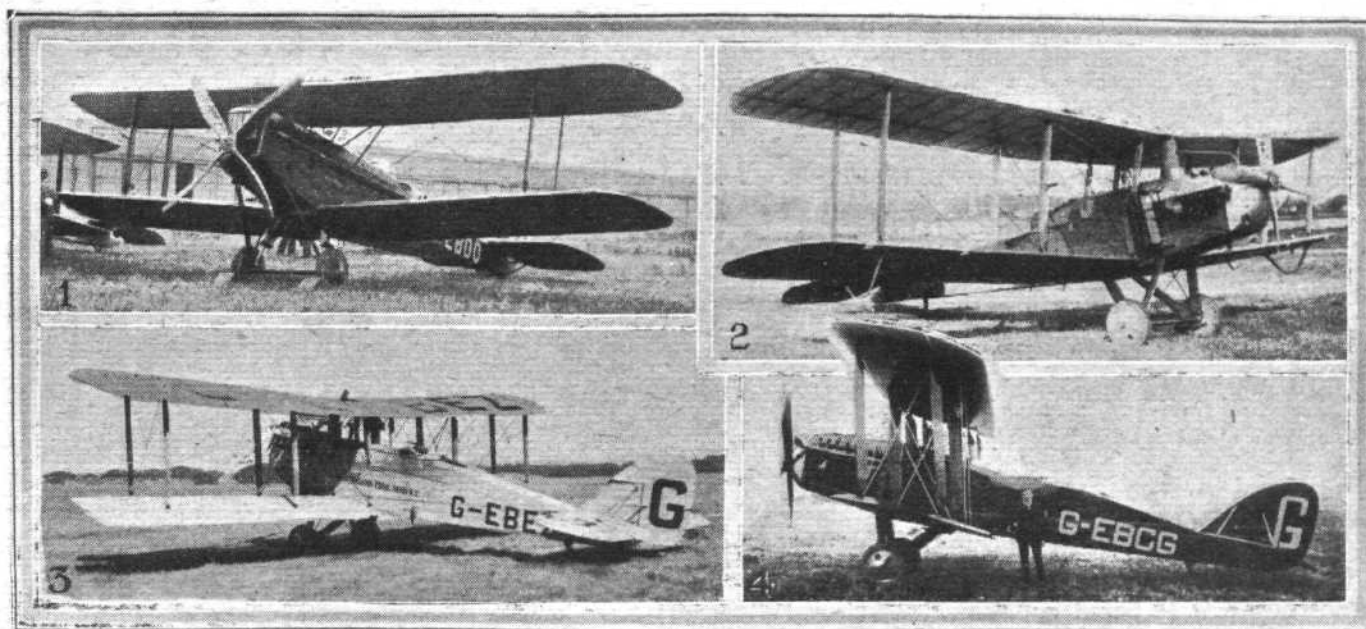
The prizes are as follows: *Fastest Time*—First, £300 and trophy (presented by the Royal Aero Club); second, £25 (presented by Trust Houses, Ltd.). *Handicap*—First, £100 and trophy (presented by the Anglo-American Oil Company, Ltd. (Pratt's)); second, £50, and third, £25 (both presented by the Royal Aero Club).

There are 13 entries, three more than last year, which, together with pilots, machines, etc., are given in the accompanying table. From this it will be seen that as regards the machines these are mostly "old" types. Only two of the machines are absolutely new, whilst another two are "half-and-half." The former consist of the Gloucestershire Aircraft Company's "Gloster" and the Hawker Engineering Company's "Sopwith-Hawker" racer, and the two latter machines are the D.H.9's, fitted with 450 h.p. Napier "Lions," both of which were entered in the King's Cup Race just recently flown.

The "Gloster" racer is a direct development of the famous "Bamel" (Mars 1), and is fitted with the 450 h.p. Napier "Lion" engine, which has done so much fine work in connection with civil and Air Force aeroplanes. It is a very diminutive biplane, and is the smallest machine ever fitted with such a powerful engine as the 450 Napier "Lion," being only



Reproduced from the Ordnance Survey Map, with the sanction of the Controller of H.M. Stationery Office.
THE AERIAL DERBY, AUGUST 6: Map of the course. The circuit, with three turning points, is covered twice, giving a total distance of 199 miles.



SOME DERBY MACHINES: Top picture shows: 1. Avro "Viper." 2. 504 K. 3. "Baby." Centre: 1. D.H.37. 2. A.D.C. D.H.9a. 3. D.H.9. 4. D.H.9a. Bottom: 1. S.E.5a. 2. Sopwith "Gnu." 3. Boulton and Paul P.9. 4. Martinsyde F.6.



THE GLOUCESTERSHIRE AIRCRAFT COMPANY'S NEW RACER: The "Gloster," with Napier "Lion," is a "cleaned-up" version of the famous "Bamel," and it will be noticed that, as regards external appearance, the main alteration is formed by the disappearance of the petrol tank from the cabane.

AERIAL DERBY, 1923.

List of Entries.

	Entrant.	Pilot.	Machine.	Engine.	Handicap.		Starting Time	
					h.	m.	s.	h.
1. G-EBCA	A. T. Renno	A. T. Renno	S.E.5A	80 h.p. Renault ..	1	36	2	1 45 0
2. G-EAUM	Sir William Letts, K.B.E.	B. Hinkler	Avro Baby	35 h.p. Green	1	24	14	1 56 48
3. G-EADB	E. A. D. Eldridge ..	J. R. King	Sopwith Gnu	110 h.p. Le Rhone ..	1	13	17	2 7 45
4. G-EBEQ	George Heath	Flight-Lieut. J. W. Woodhouse, D.S.O., M.C.	Boulton and Paul P.9	90 h.p. R.A.F. 1A ..	1	10	59	2 10 3
5. G-EAMZ	W. M. W. Thomas ..	W. M. W. Thomas ..	Avro 504 K	130 h.p. Clerget	0	57	26	2 23 36
6. G-EAPR	A. V. Roe	Capt. H. A. Hamersley	Avro Viper	200 h.p. Wolseley Viper	0	51	38	2 29 24
7. G-EBDK	F. P. Raynham	F. P. Raynham	Martinsyde F.6	200 h.p. Wolseley Viper	0	38	53	2 42 9
8. G-EBDO	Alan S. Butler	Major H. Hemming, A.F.C.	D.H.37	275 h.p. Rolls-Royce Falcon 3	0	38	1	2 43 1
9. G-EBCG	Lieut.-Col. M. O. Darby, O.B.E.	H. H. Perry	D.H.9A	350 h.p. Rolls-Royce Eagle VIII	0	33	54	2 47 8
10. G-EBGX	Lieut.-Col. John Barrett-Lennard, C.B.E.	F. T. Courtney ..	D.H.9A	450 h.p. Napier Lion..	0	20	37	3 0 25
11. G-EBEZ	Major Vernon Bradshaw	Capt. C. D. Barnard	D.H.9	450 h.p. Napier Lion..	0	18	37	3 2 25
12. G-EAKI	T. O. M. Sopwith ..	Flight-Lieut. W. H. Longton, D.F.C., A.F.C.	Hawker-Sopwith	400 h.p. Bristol Jupiter	0	7	4	3 13 58
13. G-EAXZ	Gloucestershire Aircraft Company	L. L. Carter	Gloster	450 h.p. Napier Lion..	Scratch			3 21 2



A "DERBY DARK HORSE": The speedy-looking Sopwith-Hawker racing biplane which is expected to do great things in Monday's Aerial Derby. It is fitted with a 400 h.p. Bristol "Jupiter," and has a wing span of only 21 feet.



20 ft. across the wings and 21½ ft. long. This machine is capable of flying 75 to 210 m.p.h.

The machine is in no way of freak design. It could be converted to a high-speed fighter scout, capable of very high performances both in speed and climb. With fighting machines of this type our Air Force would be placed in the supreme position of having the finest and best fighting scouts in the world, and with a good margin of performance to spare.

The "Sopwith-Hawker" is somewhat of a "dark horse," about which we have, at the moment, very little information beyond that it is a small biplane of very fine proportions, fitted with a 400 h.p. Bristol "Jupiter." It has a span of 21 ft., a chord of 5 ft. 1½ ins., gap 4 ft. 5 ins., and an overall length of 19 ft. 3 ins. The power loading is somewhere in the neighbourhood of 5 lbs. per h.p., so the machine should be able to show a good turn of speed.

As regards the other machines, we do not think it will be necessary for us to pass any remarks on these, as each represents a very well-known type and should by now be "familiar objects of the air" to most of our readers.

Air League Challenge Cup

THE race for the Air League Challenge Cup will form part of the programme of the Aerial Derby meeting at Waddon Aerodrome, Croydon, on August Bank Holiday.

It will be decided over a triangular course of about 100 miles. The course will be made known to the competitors one hour before the start. They will be started at intervals of two minutes, and the competitor who completes the course in the shortest time will be the winner.

LONDON TERMINAL AERODROME

Monday Evening, July 30, 1923

GOODS TRAFFIC on the Instone Air Line's London-Cologne route has now assumed such proportions that it has been found necessary to provide a special "cargo-plane" to deal with it. The old "City of London," the original commercial Vickers "Vimy," has been converted for this purpose, and made her maiden voyage as an air freighter to Cologne today. All the seats and interior fittings have been taken out, and the windows filled in, so that this machine is now nothing more nor less than a flying covered van. Among the many goods contracts obtained by the Instone Air Line is one to convey 50 tons of tobacco from London to Cologne. This is brought straight out of bond in London into bond at the Customs House on the Aerodrome, and is then shipped into the machines for Cologne as space allows. For the return flights consignments of something approaching 100 tons of dye-ware have been secured.

Something in the nature of a sensation was provided at the air station during the week, when it became known that astute Germans had been travelling by air from Amsterdam to London and thence by air non-stop to Cologne, taking with them as personal luggage large consignments of marks. This, I understand, has been done in order to provide tradesmen in Cologne with a sufficient quantity of this paper money to cope with the depreciation in the mark, and the airway is the only method by which large quantities can be got into the British Occupied Area without confiscation.

For the first time for a considerable period the weather interfered with the regularity of the air services on Saturday, and in consequence Sunday was an extremely busy day. Handley Page Transport had four machines fully laden between London and Paris, and the Instone Air Line needed five D.H.34s to cope with their traffic on Sunday. Even the Daimler Airway, who do not usually run a Sunday service, had a special machine in from Amsterdam.

A New Passenger Record

HANDLEY PAGE TRANSPORT have created a new record for passenger-carrying by flying over 1,000 air travellers between London and Paris during the month of July, thus beating

Rolls-Royce "Condor" Engine at Gothenburg

WE wish to draw attention to the following corrections to the specification of the Rolls-Royce "Condor" aero engine which appeared in our first Gothenburg Show Report, July 19 last. In preparing same we had not then received from the makers the latest figures relating to the "Condor" Series III exhibited at Gothenburg, and therefore had to rely on the specification in our possession relating to an earlier model. The corrections are: Maximum crankshaft speed, 2,100 r.p.m.; normal propeller speed (.428 reduction gear), 815 r.p.m.; weight—including reduction gear, propeller boss,

The following units have entered:—

1. Andover .. Wing-Commander J. T. Babington, D.S.O.
2. Cranwell .. Flight-Lieut. F. G. C. Weare, M.C.
3. Duxford .. Flight-Lieut. L. M. Bailey, A.F.C.
4. Eastchurch .. Flight-Lieut. H. S. Shield, M.C.
5. Farnborough .. Flying Officer G. W. Hemming, D.S.C.
6. Flowerdown .. Flying Officer G. V. Howard, D.F.C.
7. Halton .. Flight-Lieut. E. B. Rice.
8. Henlow .. Flight-Lieut. C. E. H. Medhurst, O.B.E., M.C.
9. Kenley .. Flying Officer Leslie Hamilton, M.B.E., D.F.C.
10. Martlesham Heath .. Flight-Lieut. J. Potter.
11. Netheravon .. Flight-Lieut. B. Ankers, D.C.M.
12. Northolt .. Air-Commodore H. C. T. Dowding, C.M.G.
13. Old Sarum .. Flying Officer P. Murgatroyd.
14. Shotwick .. Flying Officer C. F. Toogood.
15. Spittlegate .. Wing-Commander A. S. Barratt, C.M.G., M.C.
16. Upavon .. Flying Officer M. C. Waltho.

All competitors will be on Bristol Fighters, fitted with 275 h.p. Rolls-Royce "Falcon" engines.

In addition to the Aerial Derby and the Air League Challenge Cup, the programme will include:—

Exhibition flights by Nieuport "Nighthawks," fitted with 400 h.p. Bristol "Jupiter" engines, piloted by Flight-Lieut. Rollo A. de H. Haig and Flying Officer John S. Chick, M.C.

Flights by the Gnosspelius motor glider "The Gull," piloted by Mr. J. L. Parker.

their previous best for any month—and this, of course, means a record for any line.

There is considerable satisfaction among a certain section at Croydon at the news that the Aerial Derby is to be flown from here, although it must be stated that some of the air-line people are not too pleased with the idea, as they believe that it interferes to a certain extent with the ordinary traffic. This is a moot point, and it is open to argument whether there is more advantage accruing to civil aviation by the crowds coming to the Aerodrome and seeing how active civil flying really is.

The only representative of the Aerodrome in the Aerial Derby is Mr. Perry, who will probably fly a converted D.H.9, with a Napier "Lion" engine, which has been erected by the Disposal Company, and should have been flown in the King's Cup Race round Britain.

The Daimler Airway's service to Berlin still continues to be so well patronised that room cannot be found for all who wish to travel, and the two through machines each way during the week are always filled to their utmost capacity. On Saturday they had to refuse 14 passengers owing to the fact that all their machines were filled, and I am told that this is more or less a regular state of affairs at the present moment.

The K.L.M. are filling their machines day by day with goods, and have rarely room for many passengers. In this connection, the most noticeable fact is that, instead of the light parcels which have up till recently been the mainstay of the air goods traffic, this firm are now getting many consignments of heavy goods, which, although they load the machine to its full capacity, do not take up the room that some of the lighter stuff does. In many cases, in fact, previously, it has been found almost impossible to load the machine to anything like its full capacity owing to the bulky nature of the consignments.

The Air Union are, of course, still getting the lion's share of the goods traffic between London and Paris, and on one occasion this week one of the old five-seater "Spads" arrived from Paris as an auxiliary machine, completely loaded. It is some considerable time since one of these machines was seen at Croydon.

exhaust pipes and screened ignition—i.e., engine complete, less radiator, water and oil, 1,336 lbs.

The Supermarine to Defend the Schneider Cup

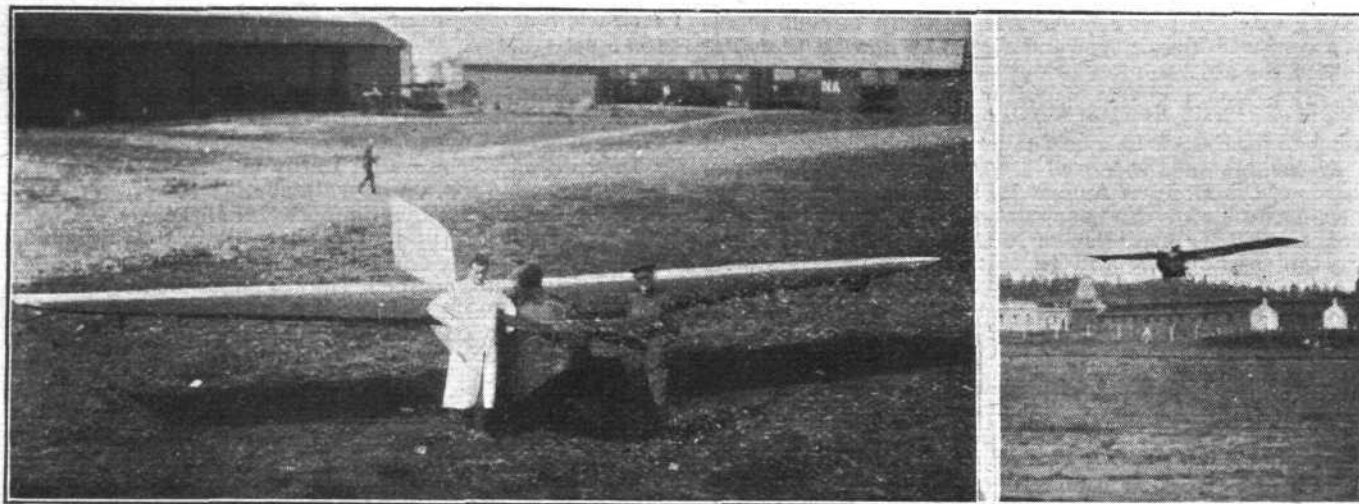
IT is gratifying to learn that last year's splendid triple combination of Biard-Supermarine-Napier, which won for Great Britain the Schneider Cup, is to again participate in this year's event. The machine will be the identical one, with another of the Napier "Lions," which did so well last year with its 145 m.p.h. No doubt a little more may be forthcoming this time. However, here's wishing the one and only—so far—British defender the best of luck.

LIGHT 'PLANE AND GLIDER NOTES

THE PONCELET LIGHT 'PLANE

IN our issue for July 12, we drew attention to "Some Climb," as credited by the lay press to Lieut. Simonet upon a 7 h.p. "motor-glider." Promptly M. Simonet from Brussels disowns the soft impeachment, and we are glad to say sends us not only the interesting facts, but also forwards a couple of photographs of his little 'plane, which we have much pleasure in reproducing. Lieut. Simonet's accompanying disclaimer and statement (which we were compelled to hold over) is as follows:—

balanced, possesses a wide speed range (40 to 85 kilos.), lands at 35 kilos. per hour, and climbs at a rate of 60 to 75 m. per minute. The machine can be readily transformed to a pure glider by only removing engine and gasoline tank, which is placed behind pilot's head. The balance is exactly the same; this seems extraordinary as the pilot's seat is in front of the wing and the engine weighs 32 kgs. I propose, as you know already, to pilot this machine at the French gliding competition at Cherbourg. Another Belgian machine, the



THE PONCELET LIGHT 'PLANE : At rest and in flight.

"I have just read in your interesting paper your article 'Some Climb' regarding my performances on the Belgian glider 'Poncelet,' fitted with a 7-10 h.p. Anzani engine.

"I have not climbed at 2,600 ft. in one minute! It is, of course, a mistake on the part of the daily press. The truth is this:—

"Saturday, July 7, I tried for the first time the Poncelet light 'plane (tried before successfully as a glider). I flew 17 minutes at 100 to 200 metres; next day I flew 15 minutes; the Monday I flew 28 minutes and reached 800 metres. Tuesday I flew 45 minutes and reached easily (in about 20 minutes) a height of 1,100 metres. The machine is very well

S.A.B.C.A. Jullien, fitted with a British Douglas five-over engine, will also take part in the competition.

"The 'Poncelet' light 'plane characteristics are as follows: span, 11 m. 20; length, 6 m. 70; weight: with engine, 100 kgs.; without engine, tank, etc., 155 kgs.; surface, 20 m. 2; engine, 7-10 h.p. Anzani 1,100 c.c., developing 10 h.p. at max. revs. (1,550); petrol tank, 18 litres, oil tank, 3 litres, giving about 3 hours' flight duration. Wing: Gottingen section—deepest section, 38 mm."

The Poncelet Glider was illustrated in FLIGHT for March 1 last, and a comparison of this and the light plane is interesting.



THE FARMAN LIGHT 'PLANE "MOUSTIQUE": The machine shown above, which won the "Petit Parisien" Grand Prix on July 15, is the latest development of the original "Moustique." It is fitted with either of the two following engines: (1) Sergent, 4-cyl. (55 by 80), 14 h.p., with geared airscrew turning at 1,550 r.p.m. for 3,500 of engine. (2) Salmson, 3-cyl. (70 by 86), 12 h.p. at 1,800, or 16 h.p. at 2,400 r.p.m. Its chief characteristics are: Span, 34 ft. 6 ins.; o.a. length, 18 ft. 6 ins.; height, 7 ft. 6 ins.; area, 161.4 sq. ft.; weight empty, (1) 253.5 lbs., or (2) 231.5 lbs.; speed, 49.7 m.p.h.; duration, with 44 lbs. of fuel, 7 hours.

AIR SERVICES IN QUEENSLAND

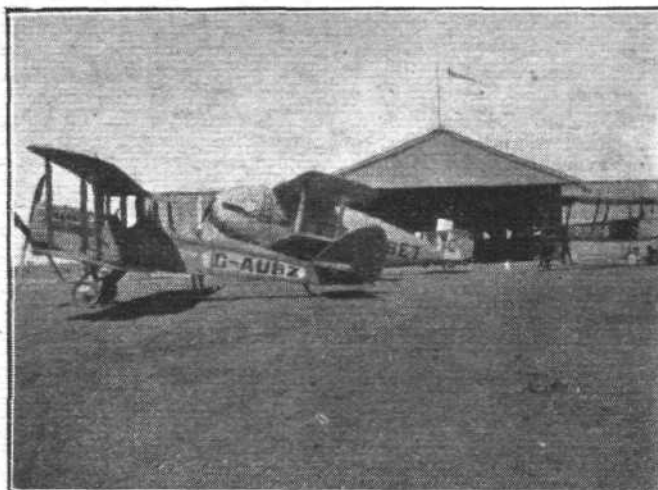
It is encouraging to learn of good air missionary work in various units of the British Empire. From Western Australia we received the note recently published, and another interesting record also comes from Mr. C. J. Hazlett, dated from the Queensland and Northern Territory Aerial Services, Longreach, Queensland. Moreover, it will be noted Mr. Hazlett has seen that his communication has reached us by the Queensland Air-Mail Service. He writes:—

"Reading a paragraph in one of your recent issues about air mail stamps and inviting correspondence, the following letter, sent by our air mail service, may, I hope, fill a corner.

(100 Dyak), a B.E.2 E. Our hopes of something up to date have been 'knocked rotten' by the total failure of one of the modern machines to come up to performance. No doubt you have heard all about her arrival here and refusal to climb much above the chimney tops, so I won't talk about her. Except that she has flown back to Melbourne, and then back to her constructors, I expect.

"The Company was to have standardised on these machines, and we are all very disappointed at her failure, as she is a beautiful job.

"The most successful machine in this hot dry climate has



AIR SERVICES IN QUEENSLAND: On the left, the ancient D.H.4 "still going strong" with the Queensland Northern Territory Aerial Services, and, on the right, reconditioning the "4" with new 3-ply. "The climate shakes up the old 'buses during the summer," writes Mr. Cecil J. Hazlett, who is seen in the foreground.

"I am a ground engineer employed in the service of this company since its start last October.

"We carry the mails between Cloncurry and Charleville, a distance of 600 miles, and run a service each way once a week. I am at present on the run between here and Charleville and leave tomorrow morning. We split the through trip of 600 miles into two hops. The northern run of 315 miles from Cloncurry to here (Longreach) is maintained by a D.H.4 (R.-R. Eagle VIII), and the southern end from here to Charleville, 285 miles, by a Bristol fighter (converted), with a 300 h.p. Hispano.

"We have got all types of 'planes here, ancient and semi-modern, including an A.W. F K.8 (160 Beardmore), an Avro

been the D.H.4, of which I enclose a snap, with the workshop in the background. She has run between here and Cloncurry with clockwork regularity for over six months now. In fact, until we recently acquired the Bristol Hispano, she practically carried the service on her back. She is by no means new (built in 1918), and we have rebuilt practically every part, but the longerons, but she is going as good as new.

"The technical staff consists of four engine fitters, one woodworker and rigger, and three pilots. As we have maintained this service since October last with three converted war machines, at 100 per cent. efficiency, I think it goes to show what a future lies in civil aviation when it is given a chance to expand."

ROYAL AERONAUTICAL SOCIETY NOTICES



Chairman 1923-24.—Mr. Alec Ogilvie, C.B.E., F.R.Ae.S., has been elected Chairman of the Society for the year 1923-24, in succession to Professor Leonard Bairstow, C.B.E., F.R.S., F.R.Ae.S., whose term of office expires on October 1.

Associate Fellowship Examination.—The second examination for election to the grade of Associate Fellow will be held in the Society's Library, 7, Albemarle Street, London, W. 1, on Monday, September 24 (Part I), and on Tuesday, September 25 (Part II). Intending candidates should forward entry forms (which may be obtained from the Secretary) on or before Monday, August 27, stating the subjects in which they desire to be examined.

Lectures.—The following programme of lectures has been arranged for the 59th Session, commencing in October:—

Date.	Author.	Lecture.
1923.		
Oct. 4 ..	Chairman's Inaugural Lecture.	(Subject to be announced later.)
Oct. 18 ..	Sqdn. Ldr. R. M. Hill	"The Manœuvres of Inverted Flight."
Nov. 1 ..	Major Wimperis	"Present Developments in Aircraft Instruments."

Nov. 15 ..	Mr. H. R. Ricardo ..	"The Thermodynamics of Aircraft Engines."
Nov. 29 ..	Sqdn. Ldr. Maycock	"Airmanship at Sea."
Dec. 13 ..	Wing Cmdr. Edmonds	"Air Strategy."

1924.

Jan. 10 ..	Dr. Aitchison and Mr. North.	"Materials from the Aeronautical Point of View."
Jan. 24 ..	Dr. Ramsbottom ..	"Fabric and Dopes."
Feb. 7 ..	A Representative of the University of Tokio.	(Subject to be announced later.)
Feb. 21 ..	Mr. H. Hamshaw Thomas.	"Aerial Photography and Survey."
Mar. 6 ..	Major Tucker ..	"Sound Detection."
Mar. 20 ..	Capt. W. S. Farren ..	"The Report of the Aeronautical Research Committee's Panel on Scale Effect."
April 3 ..	Colonel the Master of Sempill.	"The British Aviation Mission to the Imperial Japanese Navy."

W. LOCKWOOD MARSH,
 Secretary.

THE PREVENTION OF FIRE*

THE Aeronautical Research Committee have just issued the Report of the Fire Prevention Sub-Committee (dated January, 1922), which contains much interesting information on this subject in connection with single-engined aeroplanes. The most important information in this Report are the recommendations of the Sub-Committee, which are as follows:—

(1) That it is desirable to insert a fireproof bulkhead between the engine and the rest of the aeroplane, the bulkhead to contain no holes other than those properly bushed, so as to prevent as far as possible burning petrol or any flame from passing to the side of the bulkhead remote from the engine; also, no petrol pipes should be led round the bulkhead. Electric wires and cables must also be brought through fireproof bushings.

(2) That a suitable form of bulkhead for existing aeroplanes can be made of wire-woven asbestos sheet faced by a sheet of aluminium. It would appear that this might be inserted in all aeroplanes. For future design the construction of a bulkhead which may be of steel and form part of the structure of the aeroplane should receive special consideration.

(3) That it is undesirable to have any material that can support combustion on the engine side of the bulkhead. A complete metal construction would be desirable where such is possible, and, where wood or the like material is used, it should be made fire-resisting by suitable treatment.

(4) That it should be the aim of designers to exclude ordinary petrol-resisting (P.R.) piping, and to see that soft soldered joints in the petrol pipes on the engine side of the bulkhead are avoided. The adoption of metallic couplings (described in R. and M. 703 and Air Publication 854) for petrol pipes is recommended.

(5) That it is desirable to have a reasonable air space between the petrol tank and the bulkhead to avoid overheating the tank. It is considered that a diminution of the fire risk will result if the petrol tanks are built into the wings instead of into the fuselage. This matter is still under consideration, and will form the subject of further experiment.

(6) That care should be taken to ensure that places where petrol may collect shall not exist in an aeroplane, as pools of petrol are difficult to deal with in case of fire, and reservoirs of petrol vapour are ignitable by burning particles of wood, dust, fluff, etc. In this connection the cowling and air intakes should be carefully drained, the drains to be effective at all normal attitudes of the aeroplane, including a steep dive, and to be sufficiently numerous to be effective even when the cowling is dented or deformed by use or rough handling.

(7) That it is undesirable to place sheet metal oil tanks on the engine side of the bulkhead. The filler should be so placed that oil cannot fall on the engine, and particularly on the exhaust manifold. The aim in view is that such tanks, which are liable to be destroyed by fire or their rubber connecting pipes burnt, shall empty themselves clear of the structure.

(8) That it is desirable to have only one petrol pipe passing through the bulkhead, preferably controlled by a single "on and off" cock, accessible to the pilot, so that in the case of fire the petrol supply to the engine compartment can be instantly cut off; also, the petrol pipe should be placed some distance from the outer edge of the bulkhead. Further, the quantity of petrol on the engine side of this valve (in the float chambers, etc.) should be a minimum.

* *The Prevention of Fire in Single-Engined Aeroplanes.* Aeronautical Research Committee Reports and Memoranda, No. 795 (F.I.). H.M. Stationery Office, Kingsway. Price 1s. net.



Honours

At an investiture held by H.M. the King at Buckingham Palace on July 25, the following were introduced into His Majesty's presence, when the King invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted:—

Order of the Bath

Companion, Military Division.—Air Commodore Amyas Borton.

Order of the British Empire.

Commander, Military Division.—Wing-Commander William MacNeece, R.A.F.

At the Royal Garden Party

AMONGST those present at the Royal Garden Party held by Their Majesties the King and Queen at Buckingham Palace on Thursday, July 26, were the following: The Duke and Duchess of York, Sir Samuel and Lady Maud Hoare, the Duke and Duchess of Sutherland, Air Chief-Marshal Sir Hugh Trenchard and Lady Trenchard, Air Vice-Marshal Swann and Mrs. Swann, Air Vice-Marshal Sir W. Salmond and Lady

(9) That it is desirable to lead the carburettor air intakes right outside the machine, and to place them well away from the exhaust manifold, the latter being placed outside the fuselage, where it would be cooled by a draught of air. In any exhaust heated air intakes or induction pipes inside the cowling special care should be taken to guard against the danger incidental thereto, and preferably they should be avoided. Further, it is advisable that all pipes in both the exhaust and inlet systems of the engine should have proper air-tight joints and be capable of withstanding considerable internal pressure.

(10) That it is very desirable to employ only fireproof magnetos on aeroplanes. The danger of fire from sparks caused by electrical gear is to be borne in mind. The magnetos and electric leads in particular should be kept as far as possible away from places where petrol vapour may be present, and precautions taken to protect the insulation against fire. When wires are sheathed to meet wireless requirements they should be earthed at suitable intervals. (Further reference given in Appendix II.)

(11) That it is desirable to introduce safety valves (or bursting discs, etc.) in all petrol tanks, with arrangements for the pressure to be released and the vapour led away from the tank, or other means taken to prevent flames from entering the tank. From the point of view of fire risk, the gravity form of petrol tank is considered preferable to other forms which use internal air pressure for controlling the petrol supply.

(12) That all places where there are air exits from the engine compartment, including all the space shut off from the rest of the aeroplane by the fireproof bulkhead, inflammable material should not be present in the immediate vicinity of exit unless it is suitably protected.

(13) That great care should be taken to ensure that the tank is held firmly in place by strong fittings. In case the tank should move forward when an aeroplane crashes, care should be taken to see that no sharp corners of controls or engine should be in the vicinity to pierce the tank.

(14) That the fabric covering the central structure of the aircraft near the engine should be rendered as non-inflammable as possible. Care should be taken that the dopes used have a low inflammability (cf. B.E.S.A. Specification, No. D.101). It has now been established that fabric, particularly when torn, readily ignites at quite low temperatures (450° C.). The temperature at which wood ignites is considerably above this figure.

(15) That any modifications of present-day designs of exhaust manifolds and pipes which will materially reduce their temperature should be encouraged, attention being directed to the desirability of ensuring that no exposed metal exceeds a temperature of 400° C.

In addition to the above recommendations the Report contains the following appendices, dealing more specifically with a number of matters referred to therein:—I. "Fire Test for Magnetos" (F.P. 38, revised). II. "Fireproof Electrical Ignition Equipment," by Dr. Bairstow (F.P. 57, revised). III. "Report on the Extinguishing of Petrol Fires on an S.E.5 in Flight by the Rapid Discharge of Carbon Tetrachloride," by Dr. Ramsbottom (F.P. 91). IV. "On the Inflammability of Doped Fabric," by Dr. Ramsbottom (F.P. 92). V. "Temperature of Ignition of Materials when Applied to a Hot Exhaust Pipe," by G. A. Hawkins and R. Garratt-Read (F.P. 93).

Salmond, Sir W. F. Nicholson, Air Commodore T. C. and Mrs. Higgins, Air Commodore B. and Mrs. Munro, Major-General Sir Sefton and Lady Brancker, Air Vice-Marshal Sir Vyell and Lady Vyvyan, Air Commodore C. H. and Mrs. Longcroft, Air Commodore H. R. Brooke-Popham, Air Commodore F. R. and Mrs. Scarlett, Air Commodore C. R. and Mrs. Samson, Air Vice-Marshal Sir Godfrey and Lady Payne, Air Commodore F. C. and Mrs. Halahan, Major-General Sir Frederick and Lady Sykes, Lord and Lady Montagu of Beaulieu, Sir Wm. and Lady Joynson-Hicks and Miss Joynson-Hicks, Wing Commander Louis and Mrs. Greig, etc.

Flight by King of Iraq

ON Saturday of last week King Feisul of Iraq left Baghdad by aeroplane for his brother's Court at Amman in Transjordan. A landing had to be made *en route* at Azrak, owing to a shortage of petrol. Fresh supplies were despatched by another machine, and King Feisul then proceeded on his journey, eventually arriving safely at Marka aerodrome, whence he proceeded by car to the Emir Abdullah's camp.

NIGHT FLYING EXPERIMENTS

THE following is a report, from a *Résumé* of Commercial and Technical Information issued by the Air Ministry, on the night flying experiments over the London-Paris route, which were carried out by the Air Ministry during part of February and March last. The object of these experiments was to test the practicability of night flying under bad weather conditions.

The machine used was a D.H.9c, owned by the De Havilland Aircraft Company. As events proved, the weather conditions were unusually bad during the period the tests. Fog was 25 per cent. greater than in 1921 and 1922, while the sky was eight-tenths or more covered by cloud under 1,000 ft. for prolonged periods; this class of cloud was in fact 120 per cent. greater than the normal for the month, and rainfall was also 90 per cent. above the monthly normal figure. Gale warnings were also frequent during the period.

These weather conditions naturally resulted in a limitation of the number of flying hours, but the experience and information gathered are considered to be extremely valuable. The most serious difficulty experienced in the tests arose from the necessity for flying in cloud. In the dark cloud cannot be seen and avoided as in daylight, and flying in cloud or above cloud without a horizon makes automatic assistance to cloud flying essential. The following alternative methods to provide such assistance have been suggested: (1) Automatic directing device, leaving the pilot free with the aid of instruments to maintain stability; (2) inherent stability or an efficient automatic stabiliser; (3) a combination of (1) and (2).

Apart from this difficulty of flying in clouds, night flying in fair weather was proved to be as simple as flying by day. It was, however, shown that under present conditions only pilots with experience of night flying should be employed for this work, and a navigator should be carried.

As regards the equipment of aircraft for night flying, the tests indicated; (i) that future designs of commercial aircraft should, so far as possible, provide for the internal stowage of necessary night-flying gear; (ii) that the navigation headlight of a single-engined tractor aircraft should be so placed as to cause no reflected glare from the propeller. At present, in order to comply with the International Air Convention, this is impracticable; (iii) that the power of sidelights should be increased to give a minimum range of 10 miles. The minimum range required at present by the Convention is 5 km. (about 3 miles).

The existing British route lighting arrangements proved more than adequate in fair weather. Under conditions of ground mist the lighthouses were at times completely obscured, and at other times first recognisable at ranges varying down to half a mile from a height of 200 ft. The green light of the Mouse lightship stood out prominently both under fair weather conditions and on occasions of poor visibility; further tests are, however, desirable in regard to colour lighting under varying conditions of visibility.

The advantages of numerous small route lights as an alternative to more powerful and more expensive lights placed further apart remain to be determined. Numerous small lights possess obvious advantages when mist is sufficient to shut out a powerful light, but is local. Test is, however, required to ascertain the loss of mist-penetrating power involved in the use of small lights. Even if this is proved to be appreciable, its disadvantage would only be of importance

under conditions in which fog or mist extended over a large section of the route.

Tests should also be made to ascertain the range of small coloured flashing lights situated adjacent to well-lighted town, and the comparative value of placing lighthouses on the high or low ground of any route. While a light situated on high ground gives greater range and marks danger spots for low flyers, the cloud on hill-tops demands a light of greater penetrative power than does valley mist. The lighthouse to be installed on the Manchester route will be placed temporarily on low ground, unlike the Channel route lights, with a view to obtaining data in this matter. Similar tests with low-powered lights are desirable.

Insufficient observation was possible to ascertain the extent to which ordinary town lighting minimises the necessity for special route lighting. Further tests in regard to this question are desirable.

It is considered that all intermediate or emergency landing grounds should be equipped with a fourth or fifth order lighthouse, obstruction lights as necessary, and boundary lights where no flood light is installed.

The strontium-coloured light at Croydon aerodrome gave distinctly the best results as a lighthouse in bad weather. Further test is, however, necessary under varying weather conditions to ascertain whether this light can supplant or must be auxiliary to the cone lighthouse.

The flood light at Croydon gave excellent results in reasonable conditions of visibility. It should, however, be movable and placed according to direction of entry of aircraft into the aerodrome. As a result of test with nine different observers, 180° arc illumination was unanimously recommended. Test of the flood light is still required under conditions of thick ground mist, and it is suggested that wing tip flares should be tried out in conjunction with and in comparison with the flood light under such weather conditions.

Pyrotechnics gave better results than is usual in daylight, and were observed under reasonably misty conditions. Their observation, however, is to some extent a matter of luck.

Mist piercing flares were tested and gave good results, but owing to their excessive cost, these flares can only be used in exceptional emergency.

The emergency landing grounds at Penshurst, Lympne and Littlestone provide, in all probability, sufficient accommodation to meet the ordinary engine failure, which is preceded by obvious warning. Littlestone, as a coastal emergency ground and as a halt pending improvement in bad weather conditions, is of special value, since, when Lympne is enveloped in low cloud, Littlestone may be clear, while Lympne may be clear when ground mist or sea fog obscure Littlestone.

The weather forecasts issued by the British Meteorological Department were of a high order of accuracy. The Meteorological Office have no regularly recorded data as to the hours of prevalence of low cloud or ground mist. From general conclusions, however, it is considered that these adverse conditions tend to become accentuated in the two hours following sunrise, and the period immediately before sunrise gives better conditions of visibility. Data in regard to this question would be specially valuable in connection with the establishment of early morning newspaper-services.

NOTICES TO AIRMEN

Aerodromes for Civil Use: Consolidated List

It is notified that (1) Aerodromes, Seaplane Stations and landing grounds, open to civil aviation in the United Kingdom, and Service and Civil stations, available to civil aircraft in case of emergency only, have been consolidated in Notice No. 61, corrected to July 1, 1923. (A copy can be obtained from the Air Ministry.)

(2) The lists are classified as follows, each aerodrome or landing ground being given in alphabetical order:—

LIST A.—Government-owned Aerodromes available for civil flying, at which accommodation exists. *Civil Aerodromes. (Licensed.)*

LIST B.—Aerodromes available for civil machines in emergency only. (a) Permanent Service Stations. (b) Stations temporarily retained for Service purposes. (c) Civil Stations.

LIST C.—Licensed Civil Aerodromes. *Civil Aerodromes licensed for all types.*

LIST D.—Unlicensed Private Aerodromes. *Aerodromes available for civil machines only by special permission of the owners, or in emergency.*

LIST E.—Emergency Landing Grounds.

(3) **Customs Stations.**—The only aerodromes at which Customs facilities exist at present are Croydon and Lympne.

Notice to Airmen No. 26 of the year 1923 is hereby cancelled.

(No. 61 of 1923.)

NOTICE TO GROUND ENGINEERS

Watford C.6. Type Magnetos.

1. It has been found that the original type of Contact Breaker Rocker Arm fitted on the Watford C.6. type magneto is liable to fracture due to the development of cracks in the sharp square corners between the lug carrying the platinum contact screw and the web of the rocker arm.

2. A new type of rocker arm, strengthened by the provision of fillets in the corners referred to, has now been standardised in accordance with Modification No. D. 1817.

3. All engines fitted with the above type magnetos in licensed aircraft should be examined forthwith, and any original type rocker arms replaced.

4. Certificates of Airworthiness will not be issued, nor existing Certificates of Airworthiness renewed in respect of any aircraft fitted with Watford C.6. type magneto unless the new type of contact breaker rocker arm is fitted.

(No. 1 of 1923.)

PAPERS AT THE INTERNATIONAL AIR CONFERENCE

Future of Air Mail Services

BY BRIG.-GEN. F. H. WILLIAMSON, C.B.E.

IN the paper which he read before the International Air Conference, Brig.-Gen. F. H. Williamson, C.B.E., Director of Mails, General Post Office, said that there was little scope for the development of an internal air mail service; the distances in the British Isles were so short and the existing means of communication, which have largely been developed by the railway and steamship companies, in conjunction with the Post Office, with a view to rapidity of postal communication, were so complete and so good that air services, in spite of their very high speed, could offer little advantage to the public. It would, of course, be possible for letters posted during business hours in any large town to be delivered in business hours at any place within 300 or 400 miles; but the demand for such a service, competing as it would have to do with the rivalry of the telegraph and telephone, was extremely small, and would afford no justification for the establishment of an air service for postal purposes only.

The same consideration applied, with almost equal force, to the air mail services now maintained between London on the one hand and Paris, Brussels, Cologne, Rotterdam and Amsterdam on the other. The advantage afforded to the sender was, on the whole, substantially greater than would be possible in the inland service; but here again existing means of communication were so good that there was practically no public demand for an air mail.

The advantage of the high speed of the aeroplane increased in proportion to the distance covered, and if night flying proved to be practicable there was no doubt that the postal service could be materially improved to places within a radius of, say, 700 to 800 miles. If business correspondence posted at the end of the day in London could be delivered early next morning in Copenhagen, Hamburg, Berlin, Prague, Vienna, Berne, Milan, or Marseilles, the inducement to the public to send its letters by air would clearly be enormously increased.

It must be borne in mind that the conveyance of the whole of the mails by air was a very unlikely development unless and until there was a marked change in the cost of air transport and in the financial limitations under which postal services were compelled to work, limitations which required some sort of correspondence between the postage charged and the cost of transport. Moreover, an essential condition of a mail service was regularity under all conditions, in all weathers, and at all times of the year. It was commonly assumed that if a method of transporting mails could be devised which was considerably more rapid, even if more expensive, than anything already in existence, there was an immediate public demand that it should be used for the carriage of mails. There was, of course, some truth in this; but the experience of the Post Office indicated that the importance attached to the mere speed of mail communication could easily be exaggerated. It was certainly a fact that a proportion of business correspondence was of great urgency, and that a certain amount of business now done by telegraph would be attracted to the post if the post were speeded up. But even of business correspondence a considerable proportion was not of any particular urgency. Even in the case of such important mail as shipping documents, so long as the shipper could post his papers a day or two after the ship carrying the cargo had left, and could be sure of their arriving at the port of destina-

tion before the cargo, he was content and asked for nothing more. Business communications again were by no means the whole of the mail. There was a very large mass of private correspondence which was of no urgency at all and on which in all probability the senders would, as a rule, pay no additional postage however great the gain of time afforded by an air service. In fact, if only a service of absolute regularity and reasonable speed was afforded the general public were quite satisfied and attached no great importance to the time taken for the letter to reach its destination.

It was probable, therefore, that for a long time to come air mails must be limited to urgent correspondence on which a special fee was charged and that such correspondence would only be a relatively small fraction of the total mail. The actual volume of air mail carried would depend on three factors: regularity, gain in time, and cost of conveyance; that is, exactly the same conditions as those on which the development of passenger and goods traffic would depend, and to which the technical development of commercial aviation must be directed.

There was one school of thought which saw in the carriage of mails the mainstay of aerial transport. The expectations of this school were probably too sanguine. There was more truth in the view that the development of aviation must depend on the extent to which it could attract passenger and freight traffic, and, to a lesser degree, perhaps, on two political considerations, namely, national defence and the improvement of Imperial communications. In other words the development of aviation would be analogous to that of railway and steamship communication throughout the Empire during the last hundred years. The policy of the Post Office would be the same as that followed in the case of steamships and railways. The Post Office would make the fullest possible use of existing air transport which public requirements demanded for that proportion of the mails for which the sender required speedy transmission; in certain outlying districts where no other means of communication were available, the whole mail might be sent by air; at a later stage contracts would be made with the Air Transport Companies for their services to be run on a schedule convenient to the mail service; but, on the whole, there was little probability that the conveyance of mails would be more than a "side-line" giving a regular and useful supplement to earnings from other sources.

It seemed not unreasonable to anticipate that for the carriage of mails on the main Imperial routes the future lies with the airship. This would not exclude the aeroplane, which would perform a useful function in acting as feeder to the airship on branch routes. One might look forward with a fair degree of confidence to future Imperial airship routes to Canada and possibly the West Indies, on the one hand; and to Egypt, India, the Straits Settlements, Australia and New Zealand, on the other, with connecting airships from Egypt to West, Central and South Africa, and aeroplane services working from Uganda (for East Africa and Zanzibar), from Bombay, Calcutta, Singapore and Port Darwin, to carry mails for important centres away from the main routes. It was perhaps not a rash prophecy to predict that the next generation would see its railways and steamships supplemented by a complete system of Imperial air communication.

Farewell Luncheon to Mr. J. H. Narbeth

ON July 25 Mr. J. H. Narbeth, C.B., C.B.E., M.V.O., R.C.N.C., Senior Assistant Director of Naval Construction, Admiralty, and Chairman of the Joint Technical Committee on Aviation Arrangements in H.M. Ships, was entertained to luncheon by the members of the Committee on the occasion of his retirement from office; Mr. Narbeth having presided over the Committee during the past five years with marked success and unfailing urbanity.

The following members, former members, and guests were present:—Commander R. B. Davies, V.C., D.S.O., A.F.C., R.N., Sqdn. Leader L. Tomlinson, D.S.O., A.F.C., R.A.F., Sqdn. Leader D. C. S. Evill, D.S.O., A.F.C., R.A.F., W. G. Sanders, Esq., R.C.N.C., C. J. W. Hopkins, Esq., M.B.E., R.C.N.C., J. D. Coates, Esq., D.Sc., Flight Lieut. W. R. D. Acland, D.F.C., A.F.C., R.A.F., Flight Lieut. W. F. Dickson, D.S.O., A.F.C., R.A.F., Mr. L. W. Bryant, B.Sc., National

Physical Laboratory, and Mr. W. A. D. Forbes, R.C.N.C., while Major R. E. Penny and Flight Lieut. Bryer, who were unavoidably prevented from attending, sent cordial and appreciative messages.

Commander Davies presided at the luncheon, and voiced the appreciation of the Navy for the outstanding services rendered by Mr. Narbeth in regard to the development of naval aeronautics, while the sentiments and goodwill of the Royal Air Force were embodied in an appreciative letter handed in by the Air Force officers attending.

This inter-departmental Committee of Admiralty and Air Force officers, and its important work in the development of the technical details of aircraft carriers, has hardly been heard of outside its immediate sphere, but it has worked throughout with efficiency, zeal and complete harmony, unaffected by the political differences between the two services that have been so much to the front of late.

THE ROYAL AIR FORCE

London Gazette, July 24, 1923

General Duties Branch

The following are granted short service commns., in the ranks stated, with effect from, and with seny. of, the dates indicated:—

Flying Officers.—D. S. Buchanan; July 16; W. C. Williams; July 14.

Flying Officer on Probation.—J. V. Ould; July 16.

Pilot Officers on Probation.—Y. W. Burnett, J. Catz, J. S. Dick, A. G. Everett, S. R. Sunnucks; July 9. G. J. Gaynor; July 12. A. D. Baillie, R. H. Bibby, P. G. Chichester, J. W. Colquhoun, H. S. Dawe, D. E. Gain, D. E. Godwin, H. L. R. Gough, F. G. Jennings, C. Mackenzie-Richards, E. Martin, M.C., J. A. Mollison, A. G. Moon, J. W. New, A. R. Perry, G. H. W. Selby-Lowndes, C. R. Troup, T. R. Wheatley, E. C. A. Wing; July 14. R. Barrett, H. N. Davies, J. T. Sykes, P. R. Stroud, H. M. S. Wright; July 16. A. C. Adams; July 17.

The following are granted short service commns., as Flying Offrs., for seven years on the active list, with effect from, and with seny. of, dates indicated:—R. E. B. Rose (Lieut., R.N., ret'd.); July 9. G. Anderson (Capt., Ind. Army, ret'd.), A. W. Bates (Lieut., R.N., ret'd.), H. M. Burrows (Lieut., R.N., ret'd.), G. A. Cavis-Brown (Lieut., R.N., ret'd.), C. W. Croxford, D.S.C. (Lieut., R.N., ret'd.), R. S. T. Fleming (Capt., Ind. Army, ret'd.), J. C. E. A. Johnson (Lieut., R.N., ret'd.), P. I. V. Rippon (Capt., Ind. Army, ret'd.); July 14. K. C. Garvie (Lieut. Ind. Army, ret'd.), F. B. Lawrie (Lieut., R.N., ret'd.); July 16. Lieut. H. A. J. de S. Barrow, K.O.S.B., is granted a temp. commn. as a

Flying Offr. on seconding for four years' duty with R.A.F.; July 16. Air Commodore F. C. Halahan, C.M.G., D.S.O., M.V.O., is placed on half-pay, Scale A; July 1. Flight-Lieut. W. E. Reason is seconded for service under the Government of the Union of South Africa; July 13. Flying Offr. G. N. Wilton is transferred to the Reserve, Class A; July 24.

Reserve of Air Force Officers

Class A.—W. F. Jaggs is granted a commn. as a pilot Officer on probation in General Duties Branch; June 19 (substituted *Gazette*, June 19).

The following are granted commns., on probation, in the General Duties Branch, in the ranks stated (July 24):—

Flying Officers.—E. A. Cherry, H. A. Hince, B. Martin, H. E. R. Nelson, A. E. H. Roberts, F. C. Russell.

Pilot Officer.—T. L. I. Bell.

London Gazette, July 27, 1923

General Duties Branch

Flying Offr. C. H. Harrison is restored to full pay from half-pay; July 16.

Reserve of Air Force Officers

Flying Offr. R. B. Sutherland, D.F.C., is transferred from Class A to Class C; July 27.

Memorandum

The permission granted to Lieut. L. A. Rees to retain his rank is withdrawn on enlistment in the Territorial Army.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Wing Commander C. R. S. Bradley, O.B.E., to Station Headquarters, Iraq, 18.6.23, for duty as Commandant.

Squadron Leader E. R. Pretymann, A.F.C., to R.A.F. Base, Gosport, 11.7.23, for duty in H.M.S. "Eagle" on commissioning.

Flight Lieutenants: W. E. Reason, to Special Duty List, 13.7.23, on secondment to S. African Government for two years. L. F. F. Bawn to Inland Area Aircraft Depot, Henlow, 23.7.23. A. R. Jones, to R.A.F. Depot, 2.7.23, on transfer to Home Estab. C. B. S. Spackman, D.F.C., to No. 41 Sqn., Northolt, 23.7.23. H. A. J. Wilson, O.B.E., to No. 3 Armoured Car Co., Iraq, 23.6.23. J. M. McAlery, to No. 1 Sqn., Iraq, 15.6.23.

Flying Officers: A. L. A. Perry-Keene, C. E. Barraclough, and C. A. Horn, all to No. 7 Sqn., Bircham Newton, 9.7.23. E. Smith, to Record Office, Ruislip, 1.8.23. G. Anderson, A. W. Bates, G. A. Cavis-Brown, H. M. Burrows, C. W. Croxford, D.S.C., R. S. T. Fleming, J. C. E. A. Johnson, and P. I. V. Rippon, all to No. 2 Flying Training School, Duxford, 14.7.23, on appointment to Short Service Commissions for course of instruction. C. B. Bond, to School of Photography, S. Farnborough, 1.8.23. F. G. Gibbons, D.F.C., to No. 208 Sqn., Constantinople, 16.5.23. F. H. Bugge, to No. 12 Sqn., Northolt, 25.7.23, on transfer to Home Estab. L. H. Weedon, to No. 12 Sqn., Northolt, 21.7.23. J. U. McKinnon, to No. 41 Sqn., Northolt, 21.7.23. D. S. Buchanan and J. V. Ould, both to R.A.F. Depot, 16.7.23, on

appointment to Short Service Commissions. K. C. Garvie to No. 2 Flying Training School, Duxford, 16.7.23, for course of instruction on appointment to a Short Service Commission. H. K. Goode, D.S.O., D.F.C., and G. W. Birkinshaw, both to Aircraft Depot, India, 29.6.23. P. Chauncy, to No. 28 Sqn., India, 15.7.23. R. M. Taylor, M.C., to No. 6 Armoured Car Co., Iraq, 23.6.23. A. P. Davidson, to Headquarters, Iraq, 19.6.23. R. P. Mollard, to No. 5 Sqn., India, 21.6.23.

Pilot Officers: B. C. Duke, R. B. Fleming, H. W. Pierce and E. S. C. Vaughan, M.C., all to No. 7 Sqn., Bircham Newton, 9.7.23. A. D. Baillie, R. H. Bibby, P. G. Chichester, J. W. Colquhoun, H. S. Dawe, D. E. Gain, D. E. Goodwin, H. L. R. Gough, F. G. Jennings, G. H. W. Selby-Lowndes, E. Martin, J. A. Mollison, A. G. Moon, A. R. Perry, C. Mackenzie-Richards, C. R. Troup, T. R. Wheatley, E. C. A. Wing and J. W. New, all to No. 2 Flying Training School, Duxford, 14.7.23, on appointment to Short Service Commissions for course of instruction. H. N. Davies and H. M. S. Wright, both to No. 2 Flying Training School, Duxford, 16.7.23, on appointment to Short Service Commissions for course of instruction. G. J. Gaynor, to R.A.F. Depot, 12.7.23, on appointment to a Short Service Commission. C. B. Horsfield and C. B. B. Maturin, both to R.A.F. Base, Leuchars (No. 404 Flight), 23.7.23.

Medical Branch

Squadron Leaders: R. H. Knowles, M.D., D.P.H., to Central Medical Board, Hampstead, 24.7.23. F. N. B. Smartt, M.B., B.A., to Headquarters, Inland Area, Uxbridge, 25.7.23. F. C. Jobson, to R.A.F. Depot, 25.7.23. R. S. Overton, to R.A.F. Depot, 23.7.23.

IN PARLIAMENT

Air Force Operations in the Near East

LIEUT.-COMMANDER KENWORTHY on July 24 asked the Under-Secretary of State for War whether the British forces in Iraq have been in action during the present year in that country; if so, under what circumstances; and whether any casualties were sustained?

Lieut.-Col. Sir Samuel Hoare: I have been asked to reply. One of the air expeditions mentioned in the answer which I gave on April 12, 1923, took place in January of this year. Since then operations have been undertaken for the purpose of re-occupying certain districts in which hostile elements had established themselves and were interfering with the administration of the country. The casualties were: Officers, none; British other ranks, one killed, seven wounded; Indian other ranks, nine wounded.

Lieut.-Commander Kenworthy: Did these operations include tax collecting expeditions which we have been sending out lately?

Sir S. Hoare: No, there have been no tax collecting operations. This information is restricted to operations undertaken in Palestine.

Air Service, London and Prague

MR. TILLET on July 25 asked the Secretary of State for Air whether he is acquainted with the proposed air service between London and Prague which is to be instituted by the Instone Line; and whether he intends to take steps to arrange for a representative of the Ministry to accompany the plane on its first journey and report upon the same in the interest of aviation generally and to help in the consideration of what form of assistance shall be rendered by the State to ventures of this character?

Major Barnston (for Sir Samuel Hoare): As regards the first part of the question, preliminary negotiations are now in progress with the Czechoslovak authorities for the extension of the London-Cologne air service to Prague.

As regards the second part, the Director of Civil Aviation undertook a flight to Prague on October 13 last in order to acquaint himself with the route and to discuss with the Czechoslovak authorities the form of assistance to be rendered by the respective States to such an undertaking. All possible assistance to further the establishment of the service will be afforded by the Air Ministry.

Imperial Airship Scheme

CAPT. W. BENN on July 26 asked the Prime Minister whether he can now make a statement as to the Imperial Airship Scheme; and can he state by which Department the scheme will be controlled?

Mr. Wells asked the Secretary of State for Air, in view of the unemployment in Bedford, if he is in a position to make an announcement with regard to the negotiations respecting the proposed Imperial Airship Company, which company, it is anticipated, is to take over Cardington Aerodrome?

Lieut.-Col. Sir Samuel Hoare: I have been asked to reply. The question of the development of airships has recently been considered by the Committee of Imperial Defence and the Imperial Shipping Committee. The Committee of Imperial Defence attaches considerable strategic value to airships, whilst the Imperial Shipping Committee considers that it is by means of an airship service that the carriage of mails can most cheaply be expedited to the Far East and Australia.

The Government have, therefore, decided to resume the development of airships and to proceed, if possible, by means of a commercial service rather than by State operation.

Proposals have been placed before them by the hon. and gallant member for

Uxbridge (Lieut.-Commander Burney) under which a bi-weekly service of six large airships to India will eventually be set up. The Government have accepted the scheme in principle, subject to the details of the contract being satisfactorily settled by the Treasury. The House of Commons will have an opportunity of considering the scheme when the details have been provisionally agreed.

The Dominions are being informed of this decision, and it is hoped to discuss the question at the Imperial Conference with a view to their co-operation in the scheme.

The administration of the scheme in so far as it is a matter of commercial aviation will come under the Air Ministry.

Mr. Wells: Is the matter likely to be settled before the winter?

Sir S. Hoare: I am afraid a matter of this kind must take some time. We are very anxious to press it through as quickly as we can. My hon. friend's particular anxiety in the scheme, as shown in Question 64, is being kept in mind.

Italy's Air Service

CAPT. W. BENN asked the Secretary of State for Air whether he has information indicating that the Italian Government has decided to set up a separate Air Service?

Sir S. Hoare: Yes, Sir. The Royal Italian Air Service was, by Royal Decree of March 28 last, constituted as a separate service, comprising all the naval and military aerial forces of the Kingdom of Italy and its colonies. The High Commissariat for Aeronautics, with Signor Mussolini as High Commissioner, has been established as the supreme authority for aeronautics.

Gothenburg Aviation Exhibition

SIR H. BRITAIN asked the Secretary of State for Air whether he can inform the House as to the result of the aviation section of the Gothenburg Exhibition; and whether he proposes to make a flying visit to the exhibition in a way which will illustrate the advantages of this method of transit?

Sir S. Hoare: As regards the first part of the question, the Director of Civil Aviation, who returned by air from Gothenburg yesterday, reports that the British aviation section of the Gothenburg Exhibition has proved very successful and has received considerable attention at the exhibition. As regards the latter part, I hope myself to visit Gothenburg, and propose to travel there by air in a British civil machine on August 5.

R.A.F. Construction Work

SIR B. FALLE asked the Prime Minister whether, in view of the constructive facilities and resources available in His Majesty's dockyard, Portsmouth, and the fact that a large portion of the naval forces are based on Portsmouth, His Majesty's Government will consider utilising His Majesty's dockyard at Portsmouth for the construction and repair of aeroplanes and other aircraft required for the Royal Air Service?

Sir S. Hoare: I am fully alive to the desirability of utilising to the utmost extent practicable existing Government resources for Government work, and the naval establishments do carry out for the Air Ministry certain kinds of work for which they are peculiarly fitted, such as the supply of torpedoes. It is, however, the policy of the Air Ministry to rely upon the aircraft industry for construction, and, except to the extent necessary to maintain a minimum Royal Air Force organisation, for repairs, I do not think that it would be advantageous to transfer such work to His Majesty's dockyards.

CORRESPONDENCE

[The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.]

THE REALM OF THE AIR AND ELECTRICITY An Experimenter's Statement

[2067] I have been requested by a few friends, who are keenly interested in aviation, to give you a short account of my experiments, carried out during the past two years. During this time my pet theory has been the utilisation of electricity from the air, and until about a month ago I thought I was practically the sole worker in the field, and then I read an article in *The Wireless Review*, regarding the experiments of Herr Plauson, who had also succeeded in this direction. The main difference between his scheme and mine lies in the design of the special transformers and motors.

I think I may claim to have gone a step further than Herr Plauson, as I have succeeded in utilising the idea in regard to aircraft, at least in a small way.

Naturally these experiments have only been carried out on models. I may here state that since disaster overtook my last model, due to the inquisitive nature of my young boy, I have shelved the experiments, as I found that without financial assistance, I could not keep going, at least to have further models built and tested as I required them to be.

The experiments have all been conducted on model airships, although I had hoped later to equip a model aeroplane with the same idea. Referring to the idea as carried through on model airships, the usual fabric covering was replaced by very light metallic covering. On this were mounted small streamlined metallic spikes, these acting as collectors. From the metallic gas container, which, by the way, is well insulated from any other part of the framework, or ship, a flexible conductor is led to the transformers, and from these to the motors.

In this brief description I shall not go into details of the special transformers used, as it would require special drawings to illustrate it fully, although it is only a small transformer working in conjunction with light condensers. The whole apparatus is very light, in fact much lighter than I first anticipated. When at a good height, the running of the motor is pretty steady, but falls off as it descends, whilst at ground level it stops altogether. On certain days the running of motor was slightly erratic; the steady running depended upon the state of the atmosphere. Naturally this can be got over by using very light accumulators, and this was to have been done in a later model. The idea was to rise to about 1,000 ft. under power taken from accumulators, at this height sufficient electricity can be collected to work motor satisfactorily, and also recharge accumulators. In a full-sized machine the motors would take their current from the accumulators and so ensure steady running, the electricity collected being used to keep same fully charged. One of the greatest troubles was the installation of the gear to switch off the motor and release the gas for descending. This had to be done, as there was no other means of getting the model down from any decent height. The gear had to be "time" set. The model was always set to travel in circles, so as to prevent it travelling any distance away.

As the speed was low, I am unable to state whether sufficient electricity would be collected at high speeds, as would be required by motors, but as Herr Plauson's idea seems to work all right in pretty strong winds, I see no reason why aircraft should not do the same.

As far as the experiments have gone, the results have been so satisfactory that I got out the details for both lighter and heavier than air craft.

If anyone cares to continue with the work, I should be pleased to place the above details before them.

Apologising for the amount of space I have taken up,
J. J. BLAND
Appleby, Westmoreland.
July 21, 1923.

"Bristols" in Australia

For nearly two years the Western Australian Airways have maintained an aerial service between Geraldton and Derby, a round trip of about 3,000 miles, using "Bristol" tourer machines. The following excerpt from a letter received from the Bristol representative in Australia regarding these machines may be of interest:—

"It may interest you to know that the Chief Inspector of the Civil Aviation Department has just returned from a trip to Western Australia, where he inspected the machines, or most of the machines, belonging to the Western Australian

Airways. He reports them to be in very good order considering the work they have done, and states that the service is an undoubted success."

"One machine that had done over 500 hours was stripped and very thoroughly inspected, and he expressed the opinion to us that the machine was absolutely sound, and perfectly capable of indefinite service."

PUBLICATIONS RECEIVED

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Militärwissenschaftliche und Technische Mitteilungen. 1923. July-August. Getreidemarkt 9, Vienne VI, Austria.

Auro Biplane, Type 504 K. Air Publication 1915. London: H.M. Stationery Office, Kingsway, W.C. 2. Price 1s. 1d. post free.

Musu Zinyas, Volume IV, No 12. Liedzia Krasto Apsaugos Ministerijos, Karo Mokslo Skyrius, Kaunas.

U.S. Department of Commerce. Scientific Papers of the Bureau of Standards. No. 468. Formulas and Tables for the Calculation of the Inductance of Coils in Polygonal Form. By F. E. Grover. May 3, 1923. Government Printing Office, Washington, D.C., U.S.A. Price 10 cents.

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Catalogue

Aero Litteratur, 1910-1923. Aktiebolaget C. E. Fritzes, Stockholm, Sweden.

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: cyl. = cylinder; I.C. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

APPLIED FOR IN 1922

Published August 2, 1923

- 6,396. J. L. SANCHEZ-BESA, A. TOUSSANT and J. J. M. BERTRAND. Aircraft. (176,380.)
9,879. G. R. HAMEL. Sustaining-device for usual aeroplanes acting without horizontal translation of the flying-machine. (178,120.)
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10,523. W. L. GARRETT and BRISTOL AEROPLANE COMPANY, LTD. Door-retaining devices. (200,227.)
13,808. D. J. MOONEY. Metal structural members for aircraft. (200,293.)
14,046. E. FRIANT. Light reservoir of non-puncturable type. (180,335.)
27,239. D. J. MOONEY and S. CROWE. Planes for aircraft. (200,420.)

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